NOTES ON
STRATEGY & MILITARY HISTORY.

NOTES ON STRATEGY

AND

MILITARY HISTORY

FOR

PROMOTION EXAMINATIONS,
MILITIA ENTRANCE, VOLUNTEER "CLASSES,"
ETC., ETC.

COMPILED BY
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LONDON:
GALE & POLDEN, LTD., 2, AMEN CORNER, E.C.,
AND
WELLINGTON WORKS, ALDERSHOT.

FOUR SHILLINGS (NETT). POST FREE.

ALDERSHOT:
PRINTED BY GALE & POLDEN, LTD., WELLINGTON WORKS.

1904.

P. 859.

"In the preparation of any martial business counsel and care are the principal elements of success, in the execution of it secrecy and celerity."

—DR. T. MILLER MAGUIRE.

PREFACE.

The object of Military "Entrance" and "Promotion" Examinations is ordinarily to test the knowledge of general principles already acquired by the Candidates, without calling upon them to display intimate acquaintance with details. No attempt, therefore, has been made in these rough "Notes" to enter into detail; consequently, to all save those whose Military Education is beginning they will appear to be merely a collection of baldest truisms, which might have been better stated. At the same time, they may help some Candidates to grapple with their Papers in Military History.

With this object the book has blank leaves at end, so that the student may jot down the instances (which he must read in recognised Military Histories) illustrating the various "principles." They are intended to be read in conjunction with "Hamley," Parts I., II,

and III., but the student who really desires to know a fascinating, as well as a vital, subject, will doubtless go further afield.

If the debateable frontier which separates Strategy from Tactics be occasionally overstepped, it is hoped that this may be forgiven as making the text more "readable."

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EASTBOURNE,
March, 1904.

DEFINITIONS.

The Base.—The locality or district upon which a Field Army relies for its supplies and reinforcements.

The Communications.—Those lines of road, rail, river, canal, etc., which link a Field Army to its Base, and by which the necessary traffic from Base to Army, and *vice versâ*, is conducted.

The Theatre of War.—All that area, by land or sea, upon which hostilities are possible.

Theatre of Operations.—The area within which collisions are probable or actually occurring.

Zone of Operations.—The area in which the Commander who holds the initiative chooses to operate.

The Initiative.—The power of a Commander to operate in pursuance of his own plans.

The Line of Operation.—The line traced out by the centre of gravity of the zone of operations, from Base to Objective.

The Objective.—The definite end towards which all the efforts of a Campaign are directed. A bulls-eye marked upon the theatre of war.

The Strategic Front.—The general direction of a line linking the advanced (fighting) portions of the Field Army, as it faces the enemy.

The Front of Operations.—The space which separates the strategic fronts of two opposing Field Armies.

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PART I.

WHAT IS STRATEGY?

To give a succinct and at the same time comprehensive definition of the word "Strategy" is most difficult.

It is the art of using the resources of a nation in war. This being so, there is the "Strategy of Peace" as well as the "Strategy of War." For war must be prepared during peace.

It is the "Art of the General." It is (or should be) also the "Art of the Statesman." For the impulse to preparation for war must, during peace, be given by the statesman.

In the theatre of war, Strategy defines the objective and the road thereto. If from the whole science of leadership in war, we deduct

all that appertains especially to "Tactics," the remainder is "the Strategy of War."

In its main principles, its broad outlines, Strategy is an unvarying art, it cannot be an exact science, to be learnt by heart from a text-book. To quote General von der Goltz: "The "phenomena of great wars are ever varying, and "their conduct is an art. For him to whom the "gods have denied the ability to penetrate into "its secrets, lessons and examples will not solve "the problem, just as no one can become a great "painter by diligent study of the science of "colours alone."

The guiding principles remain the same, while the environment in which these principles must be put into practice is constantly changing.

The same broad considerations which guided Timurlane, Cæsar, Hannibal, or Napoleon bind us equally to-day. We enjoy greater facilities for putting principles into practice, and that is all. Tactical procedure is, on the contrary, ever varying in its every branch, *pari passu* with the progress of science and invention as applied to war.

The ringing-up of the curtain upon every "great war" has been the signal for a more or less profound revolution in tactics, a revolution

which could not well have been accomplished during the preceding peace, because the exact effect of recent developments in material and appliances can only be determined by actual experience.

The conditions of war cannot be reproduced in peace, so that forecasts are often proved inaccurate.

Should the outbreak of war indicate that the military leaders of a State have failed in some respects to grasp the full significance of recent advances in science or invention, this must not be accepted as conclusive proof of their military incapacity.

Neglect of the study of "Strategy," however, and of Strategy's first cousin, "Military Geography," is of itself fatal to all hope of successful leadership in war.

For it is possible to amend tactics which have been shown faulty by the teachings of the first collisions of a campaign, whereas an initial strategic error of any importance is usually irretrievable.

"War Strategy" and "Tactics," then, are complementary, for Strategy lives upon tactical success, and deprived of its sustenance the best Strategy withers and fades.

Tactics is the handmaid of Strategy, carrying out the orders of the latter. This being so, Strategy must not demand more than tactics can perform.

The "Strategy of Peace" is more directly within the province of the statesman than of the soldier. It deals with all the manifold preparations for war which every great nation must make if it would not fall a prey to more vigorous, more virile, or more ambitious neighbours. It is intimately bound up with considerations of exterior and interior policy.

A straightforward exterior policy will win for a state advantages both political and geographical, the full benefit of which may not become apparent to a general public until an outbreak of hostilities, and, above all, will ensure that "the pen does not lose by writing what the sword has won by fighting."

A sound interior policy will endeavour to ensure that advances in education, improvement in social condition, increase of wealth and luxury, do not involve a corresponding decline in national virility, and while ever striving for the amelioration of the social condition and the "prosperity" of all classes, will see to it that a sound military system is built up side by side

with that prosperity, and that place is found within that system for representatives of all the strata of society.

It is patent that a military system which excludes the whole of a certain "class," or from which certain "classes" hold themselves aloof, cannot be a satisfactory one, in that it is an artificial creation, having no deep roots penetrating into the nation at large.

The presence within a great nation of whole masses of population having no interest in, no "touch," with the military services, is itself a danger of the utmost importance.

MORALE.

By *morale* is meant mental condition, moral condition. *Morale* may be good, bad, or indifferent. It is a factor of the first importance in war. A good *morale* begets the complex moral qualities which differentiate the efficient soldier from the armed man, and the efficient unit from the armed mob. To some extent it is provided or withheld by national character, by national idiosyncrasies, but it is cultivated mainly by a firm though strictly just discipline, by careful training, and by the peculiar relationship between superior and subordinate (comradeship

tempered by authority), which pertains solely to a sound military system.

Good *morale* means trust in the judgment of the leader, even when the influences which have framed his decision are obscure, patience under stress of hardship and discomfort, coolness and self-reliance in emergencies, the subordination of personal interests to the common good, alacrity and diligence in the performance of duty, temperance in the moment of success, firmness in the hour of defeat, and *the habit of concerted action.*

Morale may be heightened or weakened; it is easier to weaken it than to heighten it. To heighten the *morale* of the individual is to enormously increase the "fighting value" of the individual and of the unit alike.

A military body devoid of *morale* is a military body without a military soul. And it is just the existence and the reality of the "military soul" which is overlooked (wilfully or otherwise) by the theorists who see salvation in a military system founded on a basis of any makeshift which dispenses with DISCIPLINE and CONTINUOUS TRAINING.

These theorists argue that recent improvements in armaments have made one man as good

as another, provided each has a gun, and has been taught how to use it.

This might be true enough if campaigns were waged by individuals, seeking each other in mortal combat, if battles were resolved into a number of independent duels. But battles are waged by the simultaneous onslaught of masses, campaigns by the organised sequence of many battles, many marches, in all of which the need for co-operation and concerted action is imperative; and the presence or absence of a " soul " experienced.

Anyone who has ever " handled " both Regular and Irregular troops will know what is meant. With the best intentions in the world, the Irregular must cultivate his *môrale* by bitter experience, and must learn in war what his Regular comrade has had daily instilled into him in peace.

Levies have never gained permanent successes when opposed by Regular troops, and never will. In the few cases where they may appear to have done so, it will be found on closer investigation that circumstances have prevented the Regular troops from obtaining the chance of asserting their superiority. Savage hordes have wiped out considerable forces of organised

Regular troops in the past, but in no case have they been ultimately successful, where the civilised Power has deemed it expedient to make the necessary effort.

Guerillas have done all that guerillas can do, in the past, and, unaided, have invariably failed to achieve success. Spain, France, and South Africa bear eloquent testimony to the truth of the fact.

Any of Napoleon's subordinates in Spain could smash the Spanish guerillas in battle; stout fighters though they were, they lacked the "soul."

In the first phase of the Franco-Prussian War of 1870-71 the Prussian armies, numerically superior, were confronted by the professional armies of the Empire, all unorganised and unprepared, it is true, but none the less professional, and therefore capable of possessing a "soul."

The Prussians, whose moral superiority, like their numerical superiority, thanks to forethought and preparation, was never in doubt, were uniformly successful, but paid dearly for their success.

The same armies, in the second phase, were opposed by the raw levies of the Republic, to which they were numerically inferior. They

were still more emphatically successful, and at a far less cost.

During the *first month*, the Prussian losses totalled 78,000 men, during the next *five months* they only totalled 51,000.

Their *morale* had been raised by the confidence begotten of superior leadership, superior organisation, and success.

The French *morale*, weak from the outset by reason of inferior organisation, was further enfeebled by bad leadership, constant and unalloyed defeat, and by the dilution of the professional forces with raw recruits.

In the first phase, the Prussians were superior in numbers and *morale*, but on the whole inferior in armament. In the second they were inferior in numbers, on the same footing as regards armament, but vastly superior in *morale*. Hence the above figures, which speak for themselves.

All this is of great importance to Britons at the present moment, when, Briton-like, efforts are being made in influential (?) quarters to reorganise our military system upon the loosest of loose "voluntary" systems.

Clubs are to be established in every parish, and the entire able-bodied population is

to be taught the use of the rifle. This is to guarantee us against aggression for all time, and the entire problem is to be solved in the simplest possible manner, by making a recreation of a duty.

The "rifle club" furore appears to have arisen in consequence of certain remarks of the late Lord SALISBURY, which appeared to strongly favour such a movement as a serious step towards a safe military system. Is it not highly probable that this NESTOR amongst statesmen had a great deal more in his mind, at the moment of uttering these words, than appeared upon the surface?

Knowing, as he did so well, the futility of "rushing" the stolid masses of our population, may he not have dreamed of gradually, imperceptibly, accustoming the phlegmatic, "liberty-worshipping" Briton, to the feel of a rifle in his hand? Once this feeling were acquired, it would be but a short and easy step towards the efficient organisation of the whole, the welding of the "armed individuals" into units which could be trained and disciplined, and so rendered capable of developing a "soul."

It has been stated above that *morale* may be heightened or weakened, in war. Of all the

factors which may conspire to heighten *morale*, perhaps the most important, next to sound organisation and a worthy cause, comes the *personality of the Commander*.

Every "great" military leader has possessed that indefinable power of personal magnetism, which is capable of inspiring trust, confidence, and devotion in colleagues or subordinates, dread and respect in an opponent.

The same end has been attained by many widely-differing temperaments: Some great captains have been cold, haughty, and reserved, disciplinarians if not tyrants, unapproachable by all outside a strictly limited circle of adherents, seeming to have few ties and no ambitions in the world beyond their chosen profession. Others again have been sympathetic and tender-hearted, moved even to tears by the scenes and emotions of war, but none the less unswerving from the path of duty.

Some have sworn fine round oaths, others have been almost, if not quite, religious fanatics. Some have been vicious to a degree, some have been understudies of St. Anthony.

The ingredients necessary to compose the moral qualities of a successful (and maybe venerated) War-Lord have not, necessarily,

much in common with the exigencies of Sunday-school "virtue."

Experience, both of men and matters, power of mental concentration, the ability to master facts and precedents, and apply their teaching to changing circumstances, self-reliance, ambition, an inflexible determination, sound bodily health, and the acquisition of the "art of trusting subordinates," all these are essential to the making of a great leader.

Possessing them, the development of the commander is mainly a matter of opportunity, and of that "personal magnetism" which impresses upon the "powers that be" the fact of the arrival upon the scene of a STRONG CHARACTER.

Descending in the scale, the *morale* of the subordinate officers of the Army or of the regiment is best assured by the influence of birth, education liberal enough to render the individual capable of following with an intelligent interest the problems of the day, and to prevent his thoughts running in a narrow groove, while specialised sufficiently to keep him *au fait* in the matters which pertain particularly to his profession.

By offering opportunities of advancement, by

the recognition of real merit, and by promptly dispensing with the services of the hopelessly non-efficient, a desirable spirit of emulation will be fostered, which must never be allowed to degenerate into jealousy or "thrusting."

The rank and file of an army must be made to feel instinctively that theirs is an honourable profession, their duty a national duty, and their period of service a contribution to the welfare of the State which should be cheerfully paid by everyone who shelters himself behind the laws and institutions of his country.

Since the rank and file of every army must necessarily contain many of inferior education, of undeveloped intellect, some even of stunted intelligence and indifferent character, discipline must be strict without verging on severity, just, but never biassed by sentimentality.

For the "uncultivated" and the "uncouth," the period of "colour service" may be the only chance of cultivation and education in a lifetime. An army should be a national training-ground, wherein are inculcated the great lessons of self-restraint, discipline, and co-operation. Existing *primâ facie* for war, it effects a vast deal of betterment in peace.

MARCHES.

Marches may be regarded as divisible into three varieties, distinguished mainly by the varying degree of preparedness for action which must be demanded of the troops taking part in them. Thus we have:—

1. Marches executed beyond striking distance of the enemy.

2. Marches during which contact with the enemy *may* occur.

3. Marches intimately connected with a crisis in the operations.

In (1), since collision with hostile bodies is presumed impossible, full attention may be paid to the important considerations of health, comfort, and convenience.

Such marches might be made at the commencement of a campaign, *e.g.*, in concentrations, where railroads, rivers, or sea transport were unavailable.

Every detail of such movements would have been thought out beforehand, the exact distance to be traversed each day by each column, the halting-places, accommodation, water supply, method of drawing rations and forage, etc.,

would all have been laid down, and very possibly some preparations made in advance of the troops.

In order to avoid the fatigue and discomfort inseparable from movements of large mixed bodies of horse and foot on one road, separate routes would be arranged for mounted troops and infantry, or possibly columns of cavalry, artillery, and infantry might march by parallel routes, and independently. In the latter case, infantry should have the *shortest*, artillery the *best*, and cavalry any other convenient road which offered.

As far as the halting places available allowed, the length of each day's march would be regulated so as to gradually harden the men and condition the horses, and thus fit them for the more strenuous exertions required in face of the enemy. If speed be of great importance, arrangements might be made to carry infantry in carts, or at least to relieve them of much of the equipment they must usually carry.

The advantages of being able to execute such a march, as a prelude to active operations, where troops are raw or inexperienced, are obvious.

No better example of a march of this nature could be given than the movement of the Grand

Army from the shores of the English Channel to the lines of the Main and Rhine in 1805.

This vast force, comprising 150,000 infantry, 40,000 cavalry, and 340 guns, was transported from Hanover, Holland, and the N.W. coast of France, and placed in position between Wurtzburg and Lauterburg, ready in every detail to commence a vigorous offensive campaign, within 30 days of the issue of the "March Orders," the mean distance for each column being about 400 miles.

As a matter of fact, the orders for the move were issued at Boulogne on the evening of August 26th, 1805, and the entire force, except the 7th Corps from Brittany, which did not arrive on the Rhine until a fortnight after the remainder, was in its allotted position by September 25th.

The divisions of each corps followed one another at intervals of a day's march, according to the following rough itinerary:—

Corps.	Commander.	Strength.	From.	Via.	To.
I.	Bernadotte.	1 Cav. Dn. 2 Inf. Dns.	Gottingen.		Wurtzburg.
II.	Marmont.	1 Cav. Dn. 3 Inf Dns.	Utret h.	The Rhine & Main.	Wurtzburg.
III.	Davout.	1 Cav. Dn. 3 Inf. Dns.	Ambl teuse.		Mannheim.
IV.	Soult.	1 Cav. Dn. 4 Inf. Dns.	Boulogne.	Lille—Douai—Meziores—M tz.	Spires.
V.	Lannes.	1 Cav. Dn. 2 Inf. Dns.	Ar as.	La Fere—Reims—Nancy....	Strasburg.
VI.	Ney.	1 Cav. Dn. 3 Inf. Dns.	M ntreuil.	La Fere—Reims—Nancy....	Lautersbourg
VII.	Augereau.		Brest.		The Rhine.
Cav.	Murat.	6 Cav. Dns., accompanied the Vth Corps.			
Guard.		6 Sq. Cav. 24 Guns. 10 Bns. Inf.			

(2). Whenever it is possible that troops on the march may encounter the enemy, *i.e.*, in marches "within striking distance" of an opponent, it is clear that all other considerations must be subordinated to preparedness for action.

What constitutes being "within striking distance" of an opponent cannot exactly be determined, so much depends upon the opponent's mobility and enterprise.

Under these circumstances, the comfort, and especially the health, of the troops would be studied so far as the exigencies of the moment permitted. But separate roads for the different arms would no longer be permissible, the services of protection (necessarily involving a certain amount of hardship) would be all-important,

unless suitable cantonments offered troops would be required to bivouac, extemporising what shelter they could.

There could be no "preparation" of camps or bivouacs, and the army would depend entirely upon its organised transport service for its daily supplies.

Columns composed of all arms would move with advanced, rear, and flank guards, and with due attention to the important duty of co-operation. The number of roads leading in the required direction, and their condition, would determine the number of columns, and, therefore, to a great extent, the strength of each.

According to circumstances, each column might furnish its own advanced guard, etc., or a general advanced guard might cover the advance of the whole force.

Halts might be ordered for certain hours and for certain periods, or the places at which halts of a given duration were to be made might be specified.

It may be taken for granted that each column, as well as the whole force, would move on as broad a front as possible. In a given column, the wider the front the less the depth, the less, therefore, the fatigue occasioned by

unavoidable checks, and the more concentrated the troops under their commander.

In a force of several or many columns, the wider the front, the greater the administrative advantages as regards provision of food and quarters, the greater the difficulties of the enemy in determining the strength and dispositions of the advancing army, and the better placed the component parts of that army for the enveloping movements which are such a feature of all present-day tactics.

The advantages, then, of an advance upon as broad a front as possible, are both administrative and tactical.

The interval between columns intended to co-operate during a march may, nay, should, be extended considerably beyond the narrow limits hitherto thought permissible, due regard being always paid to the intervention of obstacles, and the nature of the country.

An accidental stumbling upon an extensive and prepared hostile position is, or should be, out of the question. The resistance which may be reasonably expected would rather be of the nature of efforts made by an enterprising enemy to pierce the veil in front of him, of stubborn attempts by small bodies to harass the advancing

force, of advanced guards or detached bodies to hold their ground pending the arrival of reinforcements, of rear guards to cover the retreat of their main bodies.

Such resistance may often check one column, or possibly two, but the action of another column in relief of those thus "hung up" will be all the more effective, if its advance partakes of the nature of an outflanking or enveloping movement.

This could scarcely be the case were it hinged so closely to the remainder (on the march), that it was liable to share their difficulties.

The mere mechanical massing of troops at a given point is no longer effective, a fresh direction and a fresh impulse are necessary to overcome a resistance which has already successfully defied the attack, and such an onslaught can only be delivered by troops situated at some distance on a flank of those in check.

It is not too much to say that the mere presence of a supporting column, though at a considerable distance, on a flank, would in many cases entirely deter even an enterprising enemy from such opposition as is here alluded to, whilst the mere threat of convergence would in every case compel his early retirement, with the minimum of loss, exertion, and marching.

(3). In "marches intimately connected with a crisis in the operations," the troops will be straining every nerve to bring an elusive enemy to action, to gain possession of a strategically important point, to reach a position whence an enveloping movement may be initiated, or they may be attempting to "steal a march" in pursuit or retreat.

"*Under such circumstances secrecy, rapidity,* "*and absolute readiness for battle are the* "*main essentials of success, and the fighting* "*columns should, for the time being, be freed of* "*all such encumbrances as second line trans-* "*port and supply columns.*" ("Combined Training," 1902.)

In other words, the fighting troops may be called upon to forego all but the merest necessities of life, until the object for which they are striving is attained.

It is under such conditions that the incalculable advantages of superior *morale* tell heavily, and it is under these conditions that raw, inexperienced, hastily-raised levies fall to pieces in the hands of their commander. They may, indeed, preserve their "animal spirits" intact for a time, they may be ready or even eager to be led against the enemy, but absence of discipline,

lack of training, lack of *savoir faire*, lead inevitably to straggling, absence of cohesion, diminished authority of superiors, and when that stage is reached, "demoralisation" is at hand. (*Armée de l'est.* December-January, 1870.) (McMahon's march from Reims—August, 1870).

NIGHT MARCHES.

Looking to the enormous advantage which an Army possesses in consequence of the ability to move swiftly, surely, and secretly BY NIGHT, when opposed to an enemy who, by reason of inferior training, lack of enterprise, or timidity, is restricted to the hours of daylight for the execution of his manœuvres, we may regard the "night march" as one of the most valuable "means by which a commander seeks to bring his enemy to battle."

It must not, however, be confounded in the mind of the student with the "Night Attack." The two are clearly differentiated, and undertaken with distinct objects in view.

Being almost invariably connected with a crisis in the operations, the occasions on which a night march may be profitably made are the same as those quoted under (2) above, *i.e.*:

1. To bring an elusive enemy to action.

2. To seize a strategically important point.

3. To reach a position of assembly whence an attack may be delivered.

4. To "steal a march" in pursuit or retreat.

5. To effect a surprise by suddenly shifting the centre of gravity of operations; and

6. Occasionally, in tropical climates, merely to avoid the extreme heat of the day.

The essentials for success are: —

1. Intimate acquaintance with the route, obtained by the careful reconnaissance of skilled scouts and staff officers, who should traverse the roads several times by day and by night.

2. The perfect quiet and order which only perfect discipline can ensure.

3. Favourable weather.

4. Secrecy, ensuring absence of organised opposition en route.

RATE OF MARCHING.

Normal rates of marching are affected by the following influences: —

1. The number of troops in a given column.

2. The presence or absence of transport and baggage, and the means of draught or carriage employed.

3. Climatic conditions, *e.g.*, temperature, snow or rain, frost, etc.

4. Condition of the roads, determined by their original construction, the amount of traffic which has passed over them, facilities for repair, etc., and by climatic conditions as above.

5. The nature of the route, whether hilly or otherwise, whether passing through defiles or open.

6. The necessity of regulating the rate of progress by that of co-operating columns.

7. The reports received from advanced troops and cavalry, and the amount of opposition experienced.

Small bodies of good infantry, under very favourable circumstances, may move for short distances at the rate of 4 miles per hour, while marching; 3½ miles per hour is a safer estimate.

Mounted troops (cavalry, mounted infantry, horse and field artillery) can accomplish 5 miles per hour with well-conditioned horses without casualties.

But these rates are seriously diminished as the numbers of a column increase. An infantry division, complete, cannot average more than 3 miles per hour. Larger bodies still less.

A shower of rain may upset all calculations as

to "time and space." WELLINGTON'S retirement from Quatre Bras, by one of the great paved "chaussées" of the Continent, with comparative ease, while GROUCHY'S troops, at a little distance, but with no "chaussée" to move on, were floundering in the mud, and NAPOLEON'S difficulties at the same time, and from a similar cause, are examples almost too threadbare to quote.

Napoleon's oversight in not providing frost-nails for his cavalry in 1812, paralysed the movements of that arm in the fatal Retreat from Moscow.

Dust, and the scarcity of water, proved more embarrassing to Lord Roberts' Column, in its never-to-be-forgotten march from Kabul to Kandahar, than even the Zamburak Kotal with its rugged, cramped paths, winding over 8,000 feet above sea-level, at various gradients up to 1 in 4.

The sodden tracks of the Eastern Transvaal will live long in the memories of those who trekked in that district during the early months of 1901. Nine miles, as the result of 14 hours' unceasing exertion, literally digging the gun teams out of the mud, which, 4 feet deep in places, formed the approach to each of the

dozen or more "drifts" encountered in that distance, was the task accomplished by one small column on the road Luneberg-Utrecht in January of that year.

Most writers on the subject are wont to dwell upon the hardships and toil involved in marching, but it is safe to say that the British soldier is never seen to better advantage than when thus engaged. Foreign military critics are fond of animadverting upon the "leisurely" nature of our movements in face of the enemy, and much has been made of our dilatoriness at the Alma and elsewhere, not always unjustly. But the British soldier, on a long march, on short rations, with every incentive to doubt and discouragement, is superb. The greater the difficulties, the more cheery and willing he becomes.

It certainly appears that his *morale* will stand more hard usage than the *morale* of the soldier of any other nationality whatsoever.

The pages of our "Military History" teem with instances of remarkable marches, strangely enough more often than not performed in all the torrid heat of an Indian "hot weather."

But we have no monopoly of the marching records, as the Peninsula (where we were often outmarched, notably by Marmont before Sala-

manca), the Franco-Prussian, the American Civil War, and many others, go to prove.

The disposition of troops on the march, as facilitating a change of direction (strategic conversion), is worth noting, and is well exemplified by the great "wheel to the right" around Metz of the 3rd Prussian Army and the Army of the Meuse, on the 27th and 28th August, 1870.

McMahon's ill-fated army, comprising the 1st, 5th, 7th, and 12th Corps, with a division of Cuirassiers, left the line of the Vesle (Reims) on August 23rd, marching north-east towards Sedan, and pursued this direction during the 23rd, 24th, and 25th.

On the latter date, the march heads of the four columns were on the line Tourteron—Vouziers, about to change direction to the east, when information derived from captured Prussian cavalrymen led to the abandonment of the march, and the occupation of a defensive position on the right bank of the Aisne.

On the 25th, the 3rd Prussian Army had debouched on to the Plain of Champagne, and had reached the line Charmont-Faremont, on a front of about 20 kilometres (12½ miles).

On the same day, the Army of the Meuse had reached the line Laheycourt—Dombasle, a front of about 30 kilometres (18½ miles).

The formation was, therefore, an echelon, the left leading, and especially adapted to a conversion to the right (north).

The westward march was pursued during the 26th, but on the evening of that day, the Prussian Intelligence (largely owing to the publication of the news in Parisian newspapers), was able to announce the fact of McMahon's move towards Sedan. This was promptly confirmed by a telegram which emanated from London, and on the night of the 26th, the direction of the march was changed from west to north. The formation was then an echelon, the *right* leading. McMahon was "headed" at Buzancy on the 27th, formed the intention of retiring westward, was ordered to resume his march on Metz by the Ministry in Paris, attempted to comply, was shut into Sedan, where he capitulated, after enormous loss, on September 1st.

MOBILITY.

Mobility may be defined as that quality which, when possessed by troops, enables their commander to rapidly transfer them and their "shooting power" from point to point of the theatre of war, or of operations.

It means something more than mere "marching power," for really "mobile" troops are capable of repeatedly covering long distances at a rapid rate (if called upon to move rapidly), of carrying with them what is necessary for sustenance and offence, of fighting at the end of their march, and of breaking away again once their object is accomplished, if they are required to do so, and all this without "breaking-down" their "means of locomotion."

It will thus be seen that the first essentials for mobility are:—

1. *For Mounted Troops.*—Leaders of character, skill, and decision, well-conditioned animals of proper stamp and breeding, capable riders, a rational system of equipment for man and horses, and GOOD HORSEMANSHIP.
2. *For Infantry.*—Good physique, previous training, good discipline, reasonable weight of equipment, and PROPER FOOTGEAR.

But no body of troops, even if possessing all the above virtues, can be truly "mobile" unless the requisite food, forage, and ammunition can keep up with it. Hence the organisation of a really mobile service of supply and transport,

suited to the conditions of the campaign is all-important.

Rapid marches and rapid action calls for good discipline, and good discipline cannot exist without good *morale*, so that good *morale* is also essential to mobility. Aptitude for "campaigning," the ability to cook, and generally look after oneself, is also important.

The true importance of mobility lies in the fact that without mobility it is impossible to effect "surprises"—and the value of "surprise" in war is incalculable. Every commander, from generalissimo to company leader, lives in the hope of "surprising" his opponent, and, if his command be non-mobile, is doomed to disappointment or discomfiture.

It is quite wrong to suppose that the party holding the initiative—or acting on the offensive—has a monopoly of "surprise," or is solely concerned with the mobility of troops.

Strategically, mobility (and it must be remembered that the term is merely relative) may enable a commander to shift the centre of gravity of operations at his will, and, although it may be at once admitted that such action will be undertaken most frequently by the party who holds the initiative, and who acts on the offen-

sive, yet there must be many occasions when such a displacement, coupled with even a local or temporary resumption of the offensive, will be of the utmost value to the defence.

Envelopment—strategical or tactical—can, in most cases, only be possible by reason of the superior mobility of superior numbers, both being equally essential.

Only superior mobility can enable a numerically inferior force to operate, with hope of success, upon "interior lines."

Only great mobility can render possible those daring dashes at the opponent's communications which must assuredly be a prominent feature in future campaigns.

A skilfully-conducted defence, utilising fully the mobility of its mobile troops, must always puzzle, deceive, and mislead the attack, and will frequently succeed in luring an opponent on to rash and ill-conceived enterprises which may suffice to turn the scale.

It is, in fact, often as easy, or easier, for the defence to effect tactical surprise, as for the attack to do so.

It seems almost superfluous to say that the value of mobility has been enhanced by modern conditions, and that in every army which aims at

making its peace training a true preparation for war, experts are daily pondering the problem of "how to increase mobility without sacrificing power."

The reason for this enhanced value is, of course, the fact that, while "surprise" (always important) is now vital, modern methods of communication, and modern methods of obtaining "intelligence" conspire to render "surprise" extremely difficult, and make further demands upon mobility.

It is the old contest of "Gun v. Armour" (in naval construction), in a different form.

In armies so unfortunately situated as to be "trained" on *un*practical lines, the tendency (always observable during peace), is to cumber the troops with weapons which no doubt vary the possibilities of their employment while increasing their powers of defence and offence, and with "equipment" and paraphernalia of all sorts which no doubt make for their comfort so long as they are "get-at-able," but all of which are condemnable because they must be *carried*.

It is not proposed to debate here the vexed question of cavalry armament, nor to discuss the relative claims of shell-power and mobility in the field gun—both matters which are always con-

tentious—never more so than after the conclusion of a considerable war, when opposing "schools" tilt at one another with utterly opposite views based on the same experiences.

Common-sense and study of the methods of probable antagonists must be relied upon to indicate the necessary compromise—for compromise there must inevitably be.

An extra pair of boots, indiarubber shoes, tins of grease, spare socks, drawers and shirts, housewives, waterproof sheets, cloaks and capes, picket pegs and ropes, horse shoes and nails, forage nets, etc., etc., are all admirable things in their way. But to pile them and their necessary "straps" on a horse's back, to add a heavy sword, an emergency ration, a half-feed of corn, a field dressing, a carbine or rifle, a bucket for the latter, a lance, 150 or 200 rounds of ammunition in a bandolier or bandoliers, a mess-tin, a water-bottle and a haversack, a saddle strong enough to carry all this, and (as an afterthought) A MAN, and to expect the result to be a "mobile cavalry soldier" after two wet nights in the open, is midsummer madness (or autumn manœuvre madness) in an acute form!

To devise elaborate plans for carrying this "general store," and to employ valuable hours in

instructing recruits how to pack it all up, with the point of every strap ending to a hairs breadth at its "correct position," as shown on an elaborate lithograph, is little short of criminal.

On the other hand, if some of these things can be dispensed with, others cannot, but must accompany the troops *somehow*, say in light carts, which, of course, involves addition to the already large transport, and to the number of non-combatant men and animals.

So with horse and field artillery. In peace time the cry is for "dash," for "mobility," and for "rapidity of fire." In war (or soon after it) those ignorant or prejudiced as to the conditions clamour for greater range and heavier shell, to the exclusion of all else.

Again a compromise is necessary, for extreme mobility is inconsistent with great range of even light shell, and totally debars large calibres, while placing a prompt limit upon rapidity of fire. Either very heavy or very light shell involves more transport for ammunition. Heavy shell are expensive, and increase difficulties of ammunition supply. Very light shell are technically ineffective, and so on.

Automobiles are not yet sufficiently reliable for the transport of considerable bodies by road,

nor for the carrying of guns designed to fire from the vehicle itself, though recent experience has shown that for reconnaissance, staff, and orderly duties they have come, not merely to stay, but to be regarded as indispensable.

It is conceivable that small parties of determined men provided with swift motor vehicles might, now and then, carry out important raids on an enemy's communications, but with the practical certainty of destruction after having achieved their object. Motors are not things which would long survive under fire, and overmuch has been claimed for them by ardent devotees of this mode of locomotion.

But if mobility is essential to the cavalry and desirable for a large proportion of the artillery of an army, it is also vital for the efficiency of the infantry, who necessarily form the bulk of the combatant troops.

Assuming that both clothing and equipment are rationally devised, the one suitable in weight, texture and hygienic properties, the other chosen, fitted, and adapted by practical men, it is only by attention to physique and training that the marching powers of the foot-soldier can be developed. Given good physique, ample training, and discipline, the only stimulant necessary to ensure mobility is *morale*.

Almost every campaign—certainly every British campaign—of military history has furnished examples of wonderful marches executed under the influence of heightened *morale.*

True mobility can never be attained by "irregular" or "auxiliary" (civilised) troops, save in the rarest instances, for the whole "habit of life," no less than the limited opportunities for training, of the individual, are entirely opposed to its achievement.

It is natural that endeavours should be made to artificially enhance the mobility of infantry—the slowest moving arm. The British service has always been proud of its "Mounted Infantry," who, after all, are only selected infantry soldiers, provided with horses or ponies, to render them more mobile. They were never intended to take the place of cavalry, or to perform the essentially cavalry functions of reconnaissance, protection, or shock.

That they have, in emergencies, undertaken cavalry duties with considerable success, is merely one more proof of the wonderful adaptability of the British soldier, and of the British officer, which permits of the employment of "makeshift" arrangements, the glossing-over of deficiencies.

Any means of locomotion other than horses or ponies might be employed, provided it were suitable to the conditions of a campaign. Light carts and wagons have been used with effect, and cyclists, after all, are only a form of mounted infantry.

BASES.

The word "Base" is ordinarily loosely used, even by military writers, who use it to convey several distinct meanings, which may be obvious to the well-schooled soldier, though by no means so clear to the student.

Thus, we have:—

1. *The Base of Supplies.—i.e.*, the locality or area whence are drawn the requirements of an army in food, material, and reinforcements. (This term may mean the "ultimate" Base of Supplies, or the "immediate" or "secondary" base).
2. *The Base of Operations.—i.e.*, the locality, area, or zone in which the troops destined to take part in a campaign, are collected, and maybe deployed, in readiness for action.

These various meanings must be separately

considered. Thus, the "ultimate" Base of Supplies is ordinarily the mother-land of the troops, since these, their reinforcements of their own race, much of their material, and possibly much of their supplies, are drawn thence.

The only exception is that of a great world-power, such as Great Britain, which has established over-sea colonies, dependencies, etc., so highly organised as to be capable, in certain cases, of furnishing armies, based upon them, with all requirements.

Take the common case of an expedition against a hill tribe on the N.W. frontier of India. Here India would be the "ultimate" Base of Supplies, because the Indian Empire is perfectly capable of supplying every requirement of the forces employed, and of reinforcing them if necessary, with sufficient troops, white or coloured, without indenting for anything upon the Motherland.

But substitute Russia for the hill tribe, and the conditions are very different. The resources of the Indian Empire, great as they are, would be insufficient. Large reinforcements of white troops, supplies of clothing, ammunition, medical and technical stores, would have to be hurried from the Motherland to supplement those avail-

able in India. So, in this case, Great Britain would be the "ultimate" Base of Supplies.

In the case of oversea expeditions, the port or ports at which the troops and stores are disembarked form "secondary" Bases of Supply.

The "Immediate" Base of Supply consists of a number of "Supply depôts," which are formed, in the first instance, close in rear of and covered by, the Base of Operations, so that they may be available for the fighting troops during the period of concentration and strategic deployment, and in the initial movements of the campaign.

As the operations progress, and the Army moves forward, other depôts are formed within the various zones of operation, according to the requirements of the forces. These successive depôts ("magazines") may be formed by *carrying forward* the contents of those in rear, or by depositing entirely fresh stores in advance of those already established, thus forming a more or less continuous chain. Railroads, rivers, canals, etc., would, of course, be used for the heavy and bulky haulage, so far as possible, *i.e.*, so far as these "communications" led to the desired points.

But often these depôts can only be formed by transporting stores by road, so that the vital

need for a sufficient and well-organised transport service is apparent.

Those depôts which are in closest touch with the fighting troops, and upon which the fighting troops draw direct, using their own transport wagons, etc., are termed "Advanced Depôts."

(It is well to note that the word "supplies," in the technical sense, refers only to *consumable stores*, *i.e.*, food, forage, fuel, lighting, etc., whereas weapons, ammunition, tools, clothing, and "equipment" generally, are comprised in the word "material," and are issued to the troops by quite a different Department.

In our service, "supplies" are arranged for by the "Supply" Branch of the Army Service Corps, transported in bulk by the Transport Branch of the same Corps, whereas the enormous agglomeration of articles comprised in the term "material" is handled by the Army Ordnance Department.)

We will now consider the requirements which the various "Bases of Supply" should fulfil.

1. *The "Ultimate" Base* must, of course, be capable of supplying all the manifold wants of a modern army. It must possess gun foundries, shell foundries, small-arm factories, clothing and har-

ness factories, and be able to comply at once with every requisition from "the front." A glance at the Regulation "Priced Vocabulary of Stores" will convey more readily than anything else the enormous variety of the demands made by the armies of to-day. In it will be found mention of every article used "in the service," from a packet of sewing needles to the 16.25in. B.L. gun. Lastly, it must supply the officers and men, without which all this "material" is inert, and the money which forms the "sinews of war."

2. *The "Immediate" Base* must be sufficiently extensive to afford a certain latitude, a certain choice of direction, to the Army, should it be driven back in place of being enabled to march forward.

If a large army were to advance, based upon a single isolated point such as a town or fortress, it is clear that much confusion would arise from the convergence, at the base, of the "communications" leading to the various component portions of the army, disposed, as they must be, upon a wide front.

But a far more serious danger would arise in the event of an enforced retirement. For there would then be a grave possibility of the entire army being driven off its communications.

Forced at first to deviate from the "natural line of retreat," communication with the base could only be maintained by circuitous routes; the greater the deviation, the more circuitous and the more hazardous the communications, until the breaking point was reached, and the Army was severed entirely from its base.

But if the extent of the base were comparable with the frontage of the Army, not merely would the convergence of communications be avoided or minimised, but, in the event of retreat the march might be directed on to any fraction of the frontage of the base, and the communications with that fraction maintained by the most direct roads.

It is, therefore, evident that the frontage of the base must be proportionate to the frontage of the army which it supplies.

So, again, in oversea expeditions of importance, it is not desirable to rely exclusively upon one port as Secondary Base, two ports at a convenient distance, and united by a railroad system inland, would be preferable.

To paraphrase a dictum of Jomini's, "The Secondary or Immediate Base should be established where it can be best sustained by the resources of the Ultimate Base, while at the same time it ensures a safe retreat to the forces which it supplies."

But in order that the supplies collected at the base may be available at all points of its extent, it is clear that good lateral communication along that extent is also essential.

Best of all lateral communications would be a good railroad, next best a navigable river or important canal, less useful would be a good road (because roads necessitate wheeled transport, many men and animals, who must be fed and cared for), while in certain cases the only communication available would be the sea.

For this reason we find that an important river was often utilised as a base, prior to the advent of railroads. The Rhine and the Main performed this function for Napoleon on many occasions.

THE BASE OF OPERATIONS has already been defined as the locality, area, or zone, in which the troops destined to take part in a campaign are collected, and may be deployed, in readiness for action.

The nature and extent of the Base of Operations will be found to vary with the importance of a campaign, and with the extent of the "strategic front" upon which the forces must be deployed.

For a continental war a wide strategic front, and therefore a wide Base of Operations would be essential. For a jungle expedition, where the troops must necessarily advance by narrow jungle paths, a single town or seaport might suffice.

Taking the case of a great war, between conterminous continental states, we may assume that the mobilisation and concentration of troops would commence before the actual rupture.

Often, indeed, the very act of concentrating troops precipitates the rupture.

As a rule, then, each state would form its Base of Operations, or develop its "Zone of strategic deployment" (which comes to the same thing) within its own frontier.

But it should not be imagined that *all* "hostilities" would be deferred until one or other belligerent was "ready."

On the contrary, at a very early stage of the proceedings each would launch across the common frontier highly mobile bodies in which

the cavalry arm would predominate, charged with the double duty of screening the assembly of their own armies, and of interfering with the mobilisation and deployment of the opposing hosts. Such action might have the most momentous consequences, and upon the results of the fighting which would ensue upon the flanks and within the "front of operations" (*vide* definitions) would largely depend the action of the main armies.

Enough has now been said to indicate the necessity for the establishment of the zone of strategic deployment behind some important obstacle, for strengthening it artificially on front and flanks if naturally weak, and for placing it sufficiently far from the common frontier to ensure that the assembling armies cannot be overwhelmed by the first rush of an opponent who may be "ready" first, and therefore able to seize the initiative.

As already mentioned, the immediate base of supplies should be covered and protected from hostile enterprises by the position and extent of the zone of deployment. If it is the least exposed, it must also be strengthened artificially, particularly on the flanks (since the front, at all events, should be secure).

Perhaps the most striking example of the consequences which result from violation of these principles is afforded by the first phases of the Franco-Prussian War of 1870-71.

To understand the events of that disastrous period, some idea of the French "Plan of Campaign" is necessary. In brief, it was as follows:

Overweeningly confident in their ability to seize the initiative, by a mobilisation and concentration which should be completed at least several days in advance of the Prussian preparations, the French proposed to assemble their armies in three great masses, two of which should assemble actually on the frontier. These masses were to be disposed as under:—

100,000 in the vicinity of Strasburg.
150,000 in the vicinity of Metz.
50,000 at Chalons.

The assembly of these two masses on the frontier was intended to puzzle the Prussians as to the point of attack, and to force them to disperse their forces accordingly.

Then, the army of Metz was suddenly to march east, effect a junction with the army of Strasburg on the Rhine, and cross that river between Germersheim and Rastadt, aiming at the Valley of the Main and the severance of Southern from Northern Germany.

It was hoped by such an opening to seduce the Southern German States from their allegiance, and, moreover, to secure the active alliance of both Austria and Italy.

Meantime, the army of Chalons was to march to Metz, to protect the flank and communications of the triumphal march on Berlin, while the French Fleet made a diversion from the direction of Denmark.

As we know, this plan was founded upon political and military premises, which proved alike unsound.

The 4th of August, 1870, found the French troops who had struggled to the frontier (amidst scenes of chaos and confusion which had already disposed of all hopes of a French initiative) distributed somewhat as follows:—

1st Mass (McMahon).—Composed of the 1st Corps, echelonned between Haguenau and Wissembourg, a distance of about 17 miles, the various divisions, etc., separated by distances which forbade mutual support or co-operation.

2nd Mass (Bazaine).—Composed of the 2nd, 3rd, and 4th Corps, with the Guard, distributed as under:—

2nd Corps—in advance of Forbach, at Spicheren, etc.

3rd Corps—some 10 miles in rear of 2nd, on
the line Sarregumines-St. Avold.
4th Corps—on left of 3rd.
Guard—in rear of 4th.

The centres of these two masses were separated by a gap of some 35 miles, communication between the two being maintained (?) by the 5th Corps at Bitche, and by the rail Haguenau-Sarreguimines, which was unsafe from the very first owing to Prussian enterprises.

Large depôts of supplies had been formed at Forbach (in the very firing-line), and at Luneville, on the Meurthe and the Metz-Strasburg railroad.

Not only were the various units in a very incompletely organised condition, but in several instances they arrived at their destinations in the dark. Cavalry was wanting, and the action of the few mounted troops available was pitiably inept.

Here we can discern no "Base of Operations," no sign of the "strategic deployment" we have referred to above, no development of a strategic front behind an obstacle, nothing but two great masses, separated by the Vosges, linked only by an exposed rail, and scattered fragments of a weak corps forced to watch a front of 28 miles

(Sarreguimines-Niederbonn), and, like D'Erlon's Corps at Ligny, to remain inactive between the two hard-pressed wings.

These wings, again, were so disposed that the whole shock of the Prussian advance fell, in each case, upon a mere fraction of the force which should have been available, while the strength of the flanks proved illusory. The Field Army was driven into or past the isolated fortresses, and the latter were invested with a promptitude and confidence which showed that the Prussians had correctly gauged the potentialities of the tactical defensive, potentialities we are only now realising to the full, as a result of our experience in South Africa.

Everything had been hurried to the frontier, and everything was overwhelmed by the first rush of the Prussian advance.

Contrast this with the Prussian dispositions, which, in spite of the confidence born of careful study and forethought, risked nothing, and took nothing for granted. Choosing as their Base of Operations the Rhine from Germersheim to Coblentz, about 90 miles as the crow flies, the three armies there assembled were in a position to either,

(1) Defend that line in case of a direct French attack.

(2) Pass the river in an offensive movement.
(3) Threaten the flank of any French advance towards the valley of the Main, by a wheel to the south.

We know, of course, that the second alternative was that which was acted upon, and that the bad dispositions of the French forces justified an advance from the Rhine, before the Prussian concentration was complete in its entirety.

LINES OF COMMUNICATION IN WAR.

The most casual sightseer, paying a visit to one of our modern battleships, can scarcely fail to be impressed by the seemingly insignificant proportion which the actual means of offence (guns, torpedoes, etc.), bear to the whole vast bulk.

He will observe that the "combatant" death-dealing appliances are few in number, and he may be excused if he inquires why this is so. For one such appliances he may see, a hundred minor pieces of mechanism will be pointed out to him, and he will only gradually come to realise that each of the hundred has duties and functions, the exact performance of which is

necessary for the efficiency of the "combatant" appliances.

Should he, just after his visit, and while his mind is still confused with recollections of "voice-tubes," "telephones," "ammunition hoists," and 20 or 30 "auxiliary engines," go over H.M.S. "Victory," his first impression must be the comparative simplicity of the latter, and he will see ten "combatant appliances" (of a sort), for one he saw on the modern ship.

And so it is with armies in the field.

In bygone times, when war meant annexation of territory, armies lived by pillaging the country in which they operated. Theirs was a primitive and by no means complicated organisation. If the country was rich, they fared well, if poor, they fared badly, but they always picked up what they wanted as they went, taking little thought for the morrow.

During winter, they retired into chosen fortified localities which they had provisioned by the simple expedient of sweeping into them the entire resources of the surrounding districts.

The means of offence were all in all, while auxiliary mechanism was either primitive in the extreme, or entirely lacking.

But every step in civilisation, every advance in

the application of science to war, tended to multiply auxiliary, "non-combatant" organisations, without which the improved means of offence were incapable of developing their powers.

Supplies of missiles and of provisions had to be carried with the fighting forces, wounded were cared for and removed to safety, and deficiencies in men and material were made good from depôts of stores formed in rear of the fighting forces.

The roads, by which these reinforcements and supplies are transported from the depôts to the combatant army, are termed the "communications," or the "Lines of communication."

Every improvement in armament, every complication of equipment, every little "refinement" which has crept into the art of war, has caused armies to lean more and more heavily upon their communications, and to regard them as arteries, the severance or interruption of which means prompt dissolution.

Thus it is that the "communications" of a modern army are its most vulnerable spot, and that the imperative need of framing every plan, great or small, in accordance with the actual possibilities and capabilities of the communica-

tions, tends more and more to limit its range of operations and to cramp its initiative.

In fine, the mobility, and therefore the power for offence, of an army, depends to a very great extent upon its lines of communication sufficing for its needs.

The communications of an army may be established by either of the following methods, or by any permutation or combination of them taken two or more at a time:—

1. By the high seas.
2. Overland, by road, or by rail.
3. By inland waterways.

Each presents special features of its own, and must be considered separately.

1. *The High Seas.*—As a link in the chain of communications, the employment of a sea can only be possible for a belligerent holding the command of that sea, and to command any particular sea, it will ordinarily be necessary to command the whole. In some cases an overwhelming supremacy in certain waters may suffice, thus, in 1878, the British Fleet, under Admiral Hornby, so effectually dominated the Black Sea that the Russians dared not feed their army by water, but were compelled to rely upon their long circuitous land communications. The

fact that other British Fleets also had the command of other seas did not affect the situation at St. Stephano directly. For a Turkish Fleet of the same strength as Admiral Hornby's would have effected the same purpose, even had it comprised their entire navy, and had Turkey had no naval pretensions elsewhere.

It was so because Russia was comparatively weak at sea, had no powerful naval ally, and because the Black Sea was a "closed sea," accessible only through the narrow straits of the Dardenelles and Bosphorus.

Usually, a state proposing to embark upon extensive oversea operations must be assured of superiority over the combined naval resources of all possible adversaries, and in order to safeguard communication by a particular sea, must be prepared to assert that superiority in far distant waters.

Napoleon's somewhat mysterious Egyptian Expedition of 1798 affords an example of the collapse of an oversea enterprise undertaken without the command of the sea. It is mysterious because we can scarcely suppose so astute a strategist as Napoleon to have been blind to the conditions of the case. He must have foreseen that the severance of his communications with

Egypt was inevitable, and it has even been suggested that he not only foresaw it, but counted upon it, and upon Kléber establishing himself so firmly in the country as to defy all efforts of the British to turn him out.

He must have realised that the British would certainly make such efforts, but he apparently under-rated our powers of assuming the offensive on land, at the end of a long sea-journey.

Whatever may have been the workings of that fertile brain, this expedition failed because it had been undertaken without command of the sea, and any similar enterprise to-morrow would assuredly fail much more promptly and dramatically.

It may then be assumed that no oversea offensive would be possible until a decisive maritime supremacy was assured, and with this supremacy assured the working of a section of the communications of an Army, by sea, would be uneventful and easy.

Given sufficient and suitable shipping, ample ports for the embarkation of troops and stores in the Motherland, and for their disembarkation at the oversea bases, nothing should occur on the waters to cause the least anxiety.

But the embarkation or disembarkation of troops and stores *without* facilities of port, from or on a mere coast-line, is an operation fraught with many difficulties and dangers.

Quite apart from all hostile interference, coasts which lend themselves to such an undertaking are few and far between.

Confining ourselves for the moment to the consideration of the case as an incident in the communications, we may assume that we have succeeded in landing our fighting forces, and that these are already working their way inland, so that we have not to face the possibilities of resistance.

The physical difficulties are sufficiently serious. To commence with, the draught of the transports will determine the distance from the shore at which they must anchor, and the remaining interval must be spanned by the ships' boats, by rafts, barges, or lighters. To enable these to discharge directly upon the shore, temporary jetties must be built, otherwise stores must be man-handled ashore with enormous effort, and many losses.

A shift in the wind, a sudden gale, an abnormal tide, even a heavy swell from some far-off disturbance, may render a complete cessa-

tion of work unavoidable, and may even compel the transports to put to sea.

Thus the entire operation is laborious and uncertain. The rate at which troops and stores can be landed will depend not only upon the distance from shore at which the transports must anchor, the state of the sea and weather, the number of lighters, etc., available, but also upon the number of transports which can unload simultaneously. Under the most favourable circumstances, a vessel must be allowed "swinging-room" equal to at least 3 or 4 times her length, so that a fleet of 10 transports, each 350 feet long, if anchored in one line, would take up a total space of 2 or 3 miles parallel to the shore, which might well present many impracticable "landing-places" in such a distance.

Moreover, the carrying capacity of such a fleet of transports would not be very great, so that the difficulties attendant upon any important operation of the kind may be readily understood.

If it be a case of *landing an expedition*, as distinct from *working a section of communications*, there is the additional complication of hostile resistance.

Should the enemy be well armed, alert, and determined, only a miraculously favourable com-

bination of chances could ensure success. Even should he be completely deceived as to actual points chosen for disembarkation, it will be strange if he cannot concentrate there, when once he ascertains the landing-places, far more rapidly than the invading troops can hope to disembark.

It is conceivable that a minor and weakly-defended harbour might be seized by a coup-de-main, and the disembarkation to some extent expedited, but, taking everything into considera-tion, we may safely relegate the landing (on an actively hostile shore) of forces destined for the subjugation of a country, to the operations of "Minor Warfare;" and dismiss from our minds any fear of a direct Napoleonic "Invasion of Britain," or of any other powerful military state.

If steamships have grown in size, carrying capacity, speed and power, so also railways afford proportionately greater facilities for con-centration by land, and the length of time necessary for the collection and fitting of any large number of transports would suffice to give ample warning to the most dilatory of opponents. The preparations for an extensive oversea expe-dition are not of a nature which admits of concealment, and we may safely venture to

assert that any such expedition would not merely disembark upon friendly territory, but with the facilities of friendly ports. (Example: Genoa. Franco-Austrian Campaign of 1859 in Italy.)

The converse operation of an embarkation in retreat presents almost identical characteristics. If it can be imagined that the worsted invader has also lost the command of the sea, it may be better for him to stay on shore and surrender. If he still retains the command of the sea, and is sufficiently free ashore to be able to choose his point of embarkation, the campaign of Torres Vedras may supply a model of how the operation might be conducted, with the minimum risk of disaster.

If, again, he be so pressed as to be compelled to embark when and how he may, if he be "driven into the sea," his is a parlous state indeed. Every danger and every difficulty which would attend a disembarkation at the same point, is accentuated tenfold. Command of the sea may avail him little.

A few words as to the details of transport of troops, etc., by sea may not be out of place.

Ships are registered by "tons gross"; to arrive at the "tons net" or actual freight-carrying capacity, the non-freight-carrying

spaces must be deducted (*e.g.*, accommodation for crew, engine-rooms, coal-bunkers, etc., etc.). This deduction may be as much as 40 per cent. of the "tons gross."

The space required for man or horse will vary with the duration of the voyage, and may be taken as follows:—

1. For a journey of only a few hours, per man, 1½ tons; per horse, 2½ tons.

2. For a voyage of a week, or less, per man, 2 tons; per horse, 6 tons.

3. For longer voyages, per man, 2½ tons; per horse, 7 tons.

The health and condition of men and horses rapidly deteriorate in consequence of the conditions inseparable from life on board a crowded vessel. Never is the value of perfect discipline more apparent than when on shipboard, while the consequences of imperfect discipline are disastrous.

If immediate action is expected of men, at the end of a prolonged sea-voyage, they must receive constant physical training and exercise during that voyage, and this is nearly always possible on a modern transport.

Animals MUST have a prolonged period of rest and recuperation on arrival, before they can

be considered available for the field. The impossibility of ensuring this in the recent Boer War contributed enormously to our difficulties, and to the protraction of hostilities.

A noticeable feature of sea-transport is its comparative cheapness, for the cost of carriage of stores by sea is only about one-tenth the cost by rail, and about one-hundredth that by road.

COMMUNICATIONS IN "SMALL WARS."

The tremendous drain upon an army operating in a civilised country which is caused by the necessity for safeguarding the communications will be exemplified under the head of "Offensive and Defensive Strategy Compared" (p. 81).

Yet in civilised warfare the object of a commander is to protect these communications by the direction of his forward march, and by the wide front which his forces occupy, rather than by any elaborate system of guards and fortified posts.

Even if these communications traverse a country whose population is hostile, the very fact of that population being "civilised" is a

powerful deterrent from active interference with military operations, for means can be devised, and should assuredly be devised by an invader, to make the consequences of aggression too lightly faced.

This was fully recognised by the Prussians in 1870-1, with the result that, in spite of the intense hatred of an intensely "patriotic" population, they suffered remarkably little from interruption of their communications.

A morbid sentimentality is the very worst influence which can be brought to bear upon warfare. When it sways an invader it never fails to arouse the scorn and contempt of friend and foe alike, and invariably defeats its own object, the cajoling of the invaded.

Again, in civilised warfare, such guards and posts along the communications as may be necessary can be provided by reserve, "second-line," or "auxiliary" troops, whose organisation and training is insufficient to warrant their active employment in the fighting lines.

Moreover, a commander may be certain that his opponent is almost, if not quite, as anxious about his own communications.

But in "small" wars, in campaigns against savages, guerillas, and so forth, who dispense

with communications, and whose entire population goes to form their fighting strength, but little effective "pressure" can be brought to bear upon the few inhabitants who remain non-combatant in a traversed territory.

The commander of the Regular troops may be certain that the main efforts of his enemy will be directed at his communications rather than at his fighting force. He will endeavour to sweep as many as possible in front of him, but many more will dribble round the flanks of his advance and engage in operations behind him.

Conducted, as such campaigns usually must be, far from the mother-country, "auxiliaries" will not be available for the maintenance of the communications, but posts and garrisons must be found from the active troops.

The extreme mobility which usually characterises the "irregular" and the guerilla renders it necessary to watch every yard of the line, however lengthy, at least so closely that no hostile gathering may take place within striking distance, without being reported, proceeded against, and dispersed.

If a railroad form the main communication, something like a continuous chain of sentries

may be necessary, such as we were obliged to maintain in blockhouses in South Africa.

But it would be unnecessary to establish such a cordon in the case of a road, while even blockhouses on a railroad require to be supplemented by strong mobile forces at intervals.

The usual method, then, is to establish strong posts at each stage, scientifically fortified to make the most of a small garrison, well provided with water and stores, and constructed so as to afford shelter for the vehicles and animals of the convoys which pass to and fro.

A certain number of these stages go to make a "section," and each "section" is provided with a small but powerful and highly mobile "flying column," ready to sally forth at any moment to disperse a gathering, escort a convoy, or reinforce a post.

In "small wars" it not infrequently happens that the number of troops necessarily detailed for the communications actually exceeds the numbers available for the fighting force, thus in the Afghan Campaign of 1880 the communications between Peshawur and Kabul absorbed no less than 15,000 men, while the effective of the Kabul Field Force did not exceed 12,000.

FLYING COLUMNS.

Often in "small wars," and less frequently in civilised operations, it may be advisable, or even necessary, for all or portion of a force to deliberately dispense with its communications for the sake of greater liberty of action.

A force thus operating is called a "flying column." The advantages it enjoys are obvious, since, so long as its supplies and transport hold out, it is strategically insusceptible, and, being tied to no line of advance or retreat, must be hemmed in and overwhelmed if it is to be "defeated."

The price which it must pay for this emancipation is represented by the relatively enormous mass of supplies, transport, material, and non-combatants which it must carry with it in all its peregrinations. In savage warfare it will be further burdened with sick and wounded, who cannot be left at the mercy of a cruel and blood-thirsty foe.

Colonel Callwell remarks ("Small Wars," p. 100), that "There is, of course, a great difference "between an army merely casting itself free-"loose from its communications for an operation

"which can be concluded in a few days, and the "same army becoming a flying column for a "considerable time, and with a view of making "some lengthy march."

It is but rarely that an "army" in "civilised" warfare can thus abandon its communications, the sole example on a large scale is that of General Sherman's march through Georgia, where, however, it was only a case of temporarily abandoning communications overland, in order to re-establish them with the coast.

Nevertheless, the magnitude of the effort may be understood when it is stated that Sherman had to carry with him 1,200,000 rations.

Other notable instances of large forces operating as flying columns are:—

1. Sir Frederick Roberts's march from Kabul to Kandahar, with over 18,000 men and 11,000 animals.

2. The return march through Tirah, in 1897.

3. Sir Frederick Roberts's first advance on Kabul from the Kurum Valley, when the communications were necessarily abandoned owing to the impossibility of sparing troops to guard them, at a moment when an early and decisive success was imperative.

Other examples, of smaller forces, have been :—

1. General Duchesnes' flying column which seized Antananarivo in the Madagascar Campaign of 1895. (Owing to faulty intelligence as to the character of the theatre of operations, the French expeditionary force was supplied entirely with wheeled transport, for which it became necessary to construct roads. This was done for about 130 miles, the remaining 100 miles were covered by a small flying column, which proved quite sufficient to overcome the Hova resistance.)

2. General Carrington's suppression of the rebellion in Rhodesia in 1896, when "columns" often consisted of a mere handful of men, with a few wagons.

3. Admiral Rawson's advance on Benin in 1897,

and others without number.

It is clear that many risks must attend such operations, and in civilised warfare it would be rare indeed to find a commander repeating Sherman's exploit of 1864.

Often, however, in the small war, a flying column is the only instrument by which a particular operation can be carried out. It then

remains to ensure that the force is in every way suitably composed and fitted for the task allotted it.

TELEGRAPHS, ETC., IN WAR.

Cables, telegraphs, and telephones facilitate the rapid transmission of "intelligence" from all parts of a theatre of operations—even from points far beyond the theatre of war—(it often happens that excellent information is obtainable from sources beyond the control of either belligerent), so that a commander is, or should be, informed as to every *ascertainable* movement and intention of his opponent, to an extent which would have appeared incredible a few years ago.

The same agencies, either alone, or in conjunction with visual signalling, permit of his communicating orders to his subordinates wherever they may be situated, whether on the march, in camp, bivouac, or cantonments, or even if actually engaged.

It is thus possible to ensure unity of purpose, and something akin to perfection of co-operation, over a widely-extended area.

Wireless telegraphy promises to render easy communication with a beleaguered garrison, and to be available in lieu of the ordinary "continuous" installations in cases where these latter are especially liable to interruption by hostile enterprise, treachery, or natural causes. Its future in naval warfare, and in communicating between ship and shore, is already assured.

But, in the nature of things, it will usually be found that the very facility of collecting and distributing information involves also increased difficulty in maintaining secrecy and reticence as to one's own plans, and therefore lessens the chances of effecting either strategical or tactical surprise.

On this score, it is difficult to decide whether the disadvantages do, or do not, outweigh the advantages.

Much will depend upon the capability of the Intelligence Department, not only in collecting information for their own chief, but in closing sources of information to the enemies' agents.

Again, the advantage of being able to rapidly communicate orders and information to subordinates is incalculable, provided, on the one hand, that the subordinate does not lean too much on these sources of inspiration, and pro-

vided, on the other hand, that the commander does not utilise his powers so as to interfere in details or dictate minutiæ.

The most perfect system of field telegraphs can never compensate for lack of enterprise and "initiative" in subordinates, and in the *execution*, though not in the preparation, of a plan, *de minimis non curat dux* should be the motto of any commander naturally prone to be over-anxious ("fussy," as a subordinate might put it). Self-denial in wires is not the least of present-day military virtues.

The enormous development of telegraphs in war permits of prompt transmission of, and compliance with, requisitions of all kinds upon the base, so that reinforcements and material may be pushed to the front with a celerity which may mean the doubling of their intrinsic value.

Pari passu with this development has grown the responsibilities of the Intelligence Department in "censoring" messages of all sorts, not merely at the bases, along the communications, and at the front of an army, but at those isolated centres where cables touch, branch, or unite.

The bases and communications of a Field Army, even if subjected to rigourous martial law (as they should be from the very outset), are

invariably hotbeds of intrigue, percolated by the enemies' spies and agents. The functions of the Censor are mainly to render the task of these gentry as difficult as possible, and these functions will be best effected, like all "Intelligence" work, by the most unobtrusive methods. The more in evidence is the Censor and his work, the less the chance of anything important being allowed to come within his ken.

RAILROADS IN WAR.

Railroads, considered either as offering facilities for the movement of troops and stores in mobilisation and concentration, or as communications for armies in the field, are a factor of prime importance. This importance is ever increasing with the enormous development of railroads in every quarter of the globe, and with the constantly extending demands made by modern armies upon their bases and communications.

Territories which but a decade ago were represented on the map by a blank, are now spanned by the iron road, the chiefest weapon in the armoury of civilisation. There are

indeed few in either hemisphere which would not introduce a railway system of sorts into the calculations for a plan of campaign.

In the case of Continental States, separated from each other by land frontiers, traversed at many points, and also skirted by, important lines of railway, the study of the "home" as well as of the possible opponent's railroad systems, becomes one of the principal duties of the strategist. The most elaborate schemes for mobilisation and concentration must be worked out, down to the smallest details, for every possible eventuality, during peace. Upon the smooth working of the "railroad schemes" the fate of a nation may depend in the hour of trial.

Their effect on operations will be best understood by some consideration of the carrying capacity of a railway in men, animals, and stores.

We may say that the ratio between the rate of marching of a unit, by road, and the rate of its conveyance by rail is "$x : y$," and that $y = k.x$; k being a numerical factor between 7 and 17.

In other words, neglecting the time necessary for entraining and detraining, a unit will be able to travel, in any given time, from 7 to 17 times as far by rail as it could by road. *e.g.*, On a good road, and under favourable condi-

tions, an infantry battalion, marching at an average rate of 2½ miles per hour with its transport, might cover 20 miles in 8 hours.

In an 8-hours' journey by rail, the same battalion, in two trains, might well cover from 140 to 340 miles, if all were clear on the line.

As to stores, a freight-train of say 30 trucks, each loaded to carry 10 tons, might well accomplish 200 miles in 12 hours.

This load of 300 tons would require at least 150 military transport wagons, each drawn by 6 horses, and accompanied by at least 3 men, in all 150 vehicles, 900 draught horses, 450 drivers, besides other men and horses to supervise, and would then be transported with difficulty 15 miles in the same time.

The train would require the services of 3 men minimum, some coal, a little oil, and water, the convoy would require food, rations, and forage, for its men and animals, weighing over 5 tons for the 12 hours.

Hence, for concentration of troops, for mobilisation, and for general transport of troops and stores, beyond the reach of hostile interference, the value of a railroad is enormous.

This value diminishes rapidly with increasing liability to interruption. Moreover, for journeys

under a certain distance, or where the time necessary for entraining and detraining amounts to a high percentage of the total time of transit, it may actually be better to move by road.

Supposing that it be desired to concentrate a considerable number of troops upon a given line, by rail, the number of troop-laden trains which can be unloaded at any given locality, in a given time, will depend upon the following rather complicated considerations, viz.:—

1. The construction of the line, whether originally built with an eye to military requirements or not. The gradients, power of locomotives, capacity of rolling-stock, etc.

2. The energy and efficiency of the railway staff.

3. Whether or no the entire resources of the system are at the disposal of the military authorities.

4. Whether alternative tracks offer, and whether these tracks be broad or narrow gauge, single or double.

5. The necessity for rest and relief of railway personnel.

6. The number of trains which can be loaded in a given time. This in its turn will depend upon:—

(1) The quantity and capacity of rolling stock.

(2) The number and accessibility of entraining points.

(3) The rapidity with which the required rolling stock can be "made-up" into trains.

(4) The actual rate of entraining, depending upon the Staff arrangements, experience, discipline, and previous training of the regimental personnel.

7. The necessary intervals of time and space between trains, for safety in running, and the maximum rate possible in running.

8. The rate of detraining, and clearing detraining points, varying as in (6) above.

9. The rate and manner in which the empty rolling-stock can be got clear of the detraining points, determined by the number and capacity of available sidings and branch lines.

10. The amount of other traffic (*e.g.*, supplies for other troops at the front), which must be pushed forward while the move is in progress.

Each and all the above must be weighed when an important movement by rail is in contemplation.

A conspicuous instance of failure in such a

movement is afforded by the breakdown of the transport by rail of the 18th and 20th Corps of the French Army of the East, December 20th to 29th, 1870.

These corps were to move by rail from Châlons and the Loire on Chagny and Châlon-sur-Sâone, but owing to faulty Staff arrangements, and utter lack of co-operation between the railway and military authorities, the lines were blocked, and whole streets of trains remained standing on the same spot for as much as 3 and 4 days together, in bitterly severe weather.

Not only was much suffering caused to the unfortunate troops, but worse still, the whole secret of the move leaked out, and the operations for the relief of Belfort failed ignominiously.

Considered as "communications," railroads present the following advantages:—

1. They ensure rapidity of transit with absence of animal exertion, they save, in fact, wear and tear of personnel and animals.

2. They place a largely increased area, and very distant sources of supply, at the service of the fighting forces.

3. They ensure prompt removal to a distance

of sick, wounded, and prisoners, thus relieving the fighting forces of their care.

4. Troops stationed along the lines of communication may be rapidly transported to the front, if required.

5. If secure lateral lines are available, these may afford good opportunities for surprise, by a sudden shifting of the centre of gravity of operations.

The disadvantages of railroads are: —

1. Their inherent delicacy of organisation, and liability to breakdown.

2. Their liability to damage by raid, or treachery, necessitating their being guarded throughout their length.

3. The fact that they can only be used in face of an active enemy at great risk.

4. Their requirements of coal and water, which may be difficult to obtain in certain theatres of operations, under the conditions of war.

The above disadvantages pertain whether the railroad be used as a "communications," or for preliminary moves and concentrations.

If used as a "line of communication," a railroad, unless supplemented by good roads, is inelastic, and ties down the forces it supplies to

a well-defined line of operations, cramping initiative in a way which roads do not, for it is comparatively easy to give a fresh direction to an Army served by roads.

Where large movements of troops are in question, the necessary scattering of the units proceeding by rail is serious, and must be taken into consideration.

(See also page 93 on "concentrations").

The "yield" of a railroad, *i.e.*, the quantity of troops and stores which can be placed by it on a desired line, per unit of time, is of supreme importance, but any attempt to give an estimate for British railroads in hypothetical cases would be almost impossible. It is astounding what energy and hard work can effect in the most unfavourable situations, and the working of the South African railroads during the Boer War must always be a thing to marvel at.

INLAND WATERWAYS.

As lines of communication, to supplement roads and rail, rivers and canals present certain limited advantages. Even if steam, as the motive power, is not available, heavy haulage,

by towing, is possible with a relatively small expenditure of force, while the necessary food and forage for the towing-parties may be carried in the boats themselves.

On the lower reaches of some rivers, suitable small steamers may be found, but their carrying capacity would be small, and they would be quite unsuited for the transport of animals.

It is to be noted that in the case of oversea expeditions, where use is made of waterways leading into the enemy's country, the invader has to cope with an adverse current during his forward movement. The disadvantages of such communications are :—

1. The necessarily slow progress.

2. The dependence upon climatic conditions, *e.g.*, flood, frost, drought, etc.

3. Their lack of "elasticity," tying the fighting force to a well defined line of operations.

A notable instance of an expedition proceeding entirely by water (river), is the Red River Expedition of 1866.

Also, in the Nile Expedition of 1884-5, the bulk of the force proceeded up the Nile by boat, encountering many difficulties from the cataracts, etc.

On a larger scale, Napoleon, in his campaign

of 1805, against the Coalition, organised a flotilla of 150 vessels, manned by French sailors, and commanded by a naval officer, on the Danube.

This flotilla not only carried supplies, but acted as a link between the main French Army on the right bank, and Mortier's detached corps on the left, considerably facilitating the task of the latter, though it was eventually unable to save him from disaster.

The extent to which the Mississipi and James Rivers figured in the American Civil War will be noted, and the obvious importance of the St. Lawrence readily recognised.

The Yang-tsze is navigable as far as I-chang, and its banks may at no distant date witness the prosecution of military operations.

On the whole, however, inland waterways, as a means of transport, are of more importance in "small wars" than in operations in civilised countries.

PART II.

OFFENSIVE AND DEFENSIVE STRATEGY COMPARED.

In Strategy, as in Tactics, the offensive presupposes superiority, and we naturally wish to assume the offensive if we feel that we are superior.

This sense of superiority may be conferred by the possession of superior numbers, by superior organisation, training, or equipment, or by the conviction that, though perhaps inferior in totals, we shall, by our skilful leading, be superior at the decisive points.

But an offensive strategy calls for offensive tactics, and if we are for any reason unable to undertake the tactical offensive, we are *ipso facto* condemned to the strategical defensive.

The advantages of an offensive strategy are:

1. It confers all the advantages of the initiative (q.v.).

2. By producing tangible and definite results it raises the *morale* of troops and nation, gives

to the leaders that confidence in themselves and their troops which is essential for able direction, and which cannot be supplied by any number of negative results obtained from even successful defensive action.

3. Upon it we largely build our hopes of confining hostilities to our opponent's territory, sparing our own resources, while placing some at least of his at our disposal.

4. It will also confer, as a rule, the choice of ground.

5. Since it must be undertaken with concentrated forces, we look to it to supply all those advantages which follow concentration of effort.

A well-defined objective calls for the offensive, and can never be attained by continued defensive action.

The offensive is, in short, the most efficient method, since by destroying an enemy's forces and resources we are going the shortest road to relief from his enterprises.

Napoleon's strategy was almost invariably offensive, and all but invariably successful, though it is highly improbable that his dramatic sequence of victories can ever again be reproduced.

All the teaching of military history goes to

show that the great leaders fought offensive wars as long as they could, assumed the defensive only when and where expedient, and always with a view to the resumption of the offensive at the first propitious moment, while they never relied upon a passive defence unless under stress of absolute necessity.

Whence we may deduce a fair estimate of the "relative advantages" of these three procedures.

The strategical defensive, on the other hand, calls for the preponderance of the tactical defensive. The tactical offensive is not necessarily totally excluded, but it can only be temporarily assumed. Such action, if persisted in, can lead to no well defined objective. The defensive rôle must indeed be assumed upon occasions, but in the mind of the leader it is coupled inseparably with the ultimate resumption of the offensive. *Il faut reculer pour mieux sauter.*

Neither does the strategical offensive entirely forbid us to make what use we may of the undoubted advantages of the tactical defensive. To take a very simple example, a vigorous offensive strategy may place a portion of our forces in a strong position whence we menace the opponent's communications so imminently

that he must attack us or retreat. Should he decide to attack us we shall enjoy all those tactical advantages which improved efficacy of firearms, and the use of field fortifications, confer upon the defence. And we shall do so without abandoning the strategical offensive, or necessarily surrendering the initiative.

Moreover, it will seldom be possible to assume the offensive everywhere. During a "great" war, we may adopt the offensive in one theatre of operations, the defensive in another.

In one portion of one theatre our forces may be energetically on the offensive, in another portion of the same theatre we may be acting strictly on the passive defensive.

The distinguishing characteristics of offensive strategy are:—

1. That we move forward towards a clearly defined objective.

2. That we seek decisive battles.

Clearly, then, offensive strategy involves the frequent repetition of long marches and heavy fighting. These in their turn involve many casualties from disease, wounds, and death, not to speak of lavish expenditure of material, and the necessity of guarding an ever-lengthening chain of communications. Thus,

an army acting on the offensive must, unless reinforced and supplied, be brought eventually to a standstill by the mere process of waste and exhaustion.

We see then that the strategical offensive demands vast resources, and not alone that, but the power of rendering those resources available when and where required over a wide range of time and space, which means facilities for transport on an enormous scale, by land, by sea, or by both.

The strategical defensive has almost invariably been assumed by forces engaged in defending their own territory, on their own territory.

But it by no means follows that because forces are thus engaged, therefore their strategy must be defensive. On the contrary, they will seek to resume offensive measures at the first opportunity, which may be afforded them by the timely receipt of reinforcements, by the mistakes or difficulties of the invader, or by advantages of climate or terrain.

An army operating in its own territory can draw its supplies from any portion of its territory which is capable of producing them, and which is not effectively occupied by the invader.

It is not so restricted in its communications as is the opponent.

Even if its primary objective be for the moment the covering of a single important point, it is by no means compelled to interpose itself between that point and the enemy.

Basing itself upon any source of supplies the communication with which is for the present secure from hostile enterprises, it may be enabled to occupy a position upon the flanks of the invader's advance.

Such a position, occupied merely by a strong and mobile detachment, and lending itself to a resumption of the offensive, or to the issue of raids, will compel the enemy to either relinquish his forward movement to attack it, or to leave behind him a body strong enough to mask it.

Should the flank of the position nearest the invader's line of advance be secure, say, by reason of resting upon an impassible obstacle, so that the enemy is compelled to choose between a frontal attack and a turning movement aimed at the distant flank, the situation is ideal. For the invader must then accept battle while labouring under one of the severest strategic disadvantages, in that he must "form front to a

flank," and a defeat will entail his being pushed off his communications.

Should he, on the other hand, mask the position by detaching a sufficient force, he can only resume his forward movement minus that detachment, whose loss may deprive him of any numerical advantage he may have possessed over the defender's main body.

The value of such a "flank position" will be doubled if its seizure and occupation can be effected so as to come as a surprise to the enemy.

An instructive instance of the manner in which lengthy communications reduce the main body of a large army is to be found in Napoleon's campaign of 1805.

The Grand Army, which issued from the Main and Rhine, numbering 150,000 foot, with 40,000 cavalry and 340 guns, could only place 65,000 men in all upon the field of Austerlitz, where it was faced by 90,000 Russians and Austrians.

There had been no very heavy fighting, the bulk of the deficit had been swallowed by the guards to the bases on the Lech, the Inn and the Danube, and by the corps necessarily detached to watch the frontiers of Bohemia and the Tyrol.

Difficult and exasperating as it is to have to check a triumphant forward march, this is often necessary. Ground won must be made good, ammunition and supplies filled up, reinforcements received, so that we may be equally capable of dealing an effective *coup de grace*, or of effecting an orderly retirement, should the changing fortunes of war unfortunately demand it.

Such a temporary check is often necessitated by the operation of "changing a base."

It often happens that a particular base presents certain advantages for the initial operations of a campaign. When these operations have been successfully concluded, and the troops are placed suitably for a fresh move, quite another base of operations may be necessary, either because the original communications have become unsafe owing to the fresh direction of the army, or because the preliminary operations have opened up a shorter and easier line.

When such an exchange is effected, a halt more or less prolonged can scarcely be avoided. The new communications must be consolidated, new *points d'appui* created, and then, after a final look round to his newly-born organization,

the commander is free once more to resume the initiative.

In the 1805 campaign, Napoleon's first operations, aimed at Ulm, were based on the Main from Frankfort to Mayence, because this provided a suitable line of operations for his great sweeping movement round that fortress. Once Mack had capitulated, and the Austrians were disposed of, the base became the Rhine, and the line of operations Strasburg-Munich, etc., which was more suitable for the next offensive movements against the Russian armies to the east.

Therefore, the Emperor halted for several days on the Lech, and there organised a secondary base, establishing hospitals, magazines, and stores, and fortifying *points d'appui*, such as Augsburg. Marshal Ney was detached to operate in the Tyrol, and so clear the right flank of the advance, and not until all these dispositions were effected did the series of operations commence which established the Grand Army on the line of the Inn.

On this latter line again, a second "secondary" base was established, having Passau, Scharding, Braunau, and Wasserbourg for *points d'appui*. Again, hospitals, magazines, and stores were provided, garrisons

placed, and corps of observation detached (Bernadotte towards the Bohemian frontier).

Another forward step led to the occupation of Vienna, and the formation of yet a third "secondary" base on the Danube was facilitated by utilising the resources of that capital. Again a considerable garrison had to be provided (Mortier), and not until then did Napoleon advance to Vischau and Austerlitz. We have already seen the extent to which his fighting force was reduced by these necessary guards and corps of observation.

Napoleon, being a great commander, did not forget that fortune may, and often does, change. He left nothing to chance, but consolidated each step of his advance, and so ensured his retreat in case of necessity. Could anything put the case more admirably than the following extract from Hamley?:—

"While distant spectators imagine him (the "commander) to be intent only on striking or "parrying a blow, he probably directs a hundred "glances, a hundred anxious thoughts, to the "communications in his rear, for one that he "bestows on his adversary's front."

The strategical defensive facilitates these matters of supply and transport. It renders

available a larger choice of communications, and it may be possible to lead an invader so dangerously far from his base, that, with his communications attenuated, his losses and difficulties ever-increasing, a sudden resumption of the offensive may overwhelm him.

Assuming that an offensive strategy is always advisable where it is possible, let us pass to the consideration of what renders it possible.

Generally speaking, a highly organised, densely populated country facilitates the offensive, while a sterile, thinly populated one favours the defensive.

It is at the very commencement of a war that the best chances of assuming the offensive present themselves. If we fail to secure the initiative at the outset, we may only be able to gain it as the result of a decisive tactical success. Hours and minutes are always valuable in war, never more so than in that critical pause between the delivery of an ultimatum and the first encounter.

This pause is never long, and every advance in science and preparation for war tends to curtail it. The events of this brief period frequently decide the allotment of success and

disaster. The Franco-Prussian War was as good as won before a gun was fired.

If, then, we can act with fully-equipped and well-posted forces against an opponent who is still struggling through his belated "preparations," we have secured the initiative, and may enjoy all its advantages. We can assume the offensive. A very few hours, 24 or even 12, may make all the difference between that and the abandonment of our plans.

The Law of Nations insists that a formal "Declaration of War" shall precede hostilities. Cases have occurred of "hostilities without declaration of war," and we must admit that the temptation to disregard that law may, in the future, prove overwhelming.*

It is, at all events, a point which no strategist can afford to overlook. It might avail very little to declaim against the iniquity and perfidy of such action, after the event.

We may certainly expect the "Declaration" to be followed by immediate action.

In order, then, to be in a position to snatch

* Whilst this chapter is yet in the press, a most striking example has been afforded by the Japanese dash at Port Arthur, delivered immediately after the rupture of diplomatic relations.

the initiative at the outset, we must have a better general military system than our opponent. We must be able to mobilise our units quicker than he can, and we must be able to transport those mobilised units to their predetermined places of concentration quicker than him.

In fact, our "Schemes of Mobilization and of Concentration" must be superior to his in plan and execution, and they must be the best our military system allows of.

In deciding upon the points of assembly for our forces, we will rely upon study of the topography of the frontiers concerned, coupled with our knowledge of the enemy's probable plans, dispositions, and communications.

Railways must always play a prominent part in "concentrations" of the future, and here we may pause to remark that "concentration by rail" offers many facilities for the purpose, but also peculiar risks.

For, once the process has commenced, in accordance with this or that carefully-thought-out scheme, it is all but irrevocable.

Whatever intelligence may reach us as to the enemy's plans and movements, we stand committed to our own.

Those units which have already arrived in position may be moved about within limits, in consequence of our latest information, others yet en route may be detrained a little in advance of, or short of, the points originally chosen, but anything like a general upset of the plan means chaos.

In spite of complex difficulties and many dangers, the importance of strategic railways can scarcely be over-estimated, and the very first offensive operations on either side of the frontier which separates two continental powers will almost certainly be raids on those lines, carried out by small and highly mobile detachments. The protection of our own lines is, therefore, one of the first tasks to be taken in hand.

We now see that the capability of a State to undertake an offensive war depends largely upon its state of preparedness, which in its turn depends upon the perfection of its military system, which again is decided by the policy and temper of its Government and people.

A nation which pins its faith to a discredited military system, which relies upon improvisation and make-shifts rather than face the temporary personal discomfort of a sound system of pre-

paration, for war, had better renounce all ideas of "the offensive," and the "initiative." The military authorities of that State may do well to clearly make this understood, otherwise, when the inevitable crisis arises, the humiliations and "regrettable occurrences" will be attributed to their own ineptitude.

A State whose resources have not been organised sufficiently to warrant an assumption of the offensive, must perforce be content to stand strategically on the defensive at the outbreak of war, and endure, maybe, many "humiliations" until the manifold preparations for an offensive war are completed.

It sometimes happens that political considerations may induce even the more powerful of two would-be belligerents to adopt a defensive attitude at the outset, especially if it be desired to throw the onus of "aggression" upon an opponent.

A Government may deem such a course prudent, having regard either to the attitude of "interested" States, or to the attitude of a section of its home population.

In either case, we may assume that an offensive strategy will be adopted, once the desired political effect has been produced.

It must always be borne in mind that the term "defensive" implies the resumption of the "offensive" at the earliest possible moment, for a defence which aims at merely parrying the blows of an enemy without any attempt at striking in return, is distinguished by the term "passive defensive," and has its limited applications in war.

A persistent "passive defensive," even on the part of a defender acting in his own territory against an invader superior in every respect, cannot be other than suicidal.

It is suicidal because it cannot attain any definite objective, and because it is destructive of *morale*.

Amongst the many telegrams and communications so freely distributed amongst the burghers of the Dutch Republics during the Boer War with the object of encouraging them to persevere in their resistance, frequently occurred the phrase "Commandant . . . . has beaten back the enemy so-and-so many times."

We have yet to learn that other commandants and burghers derived from this oft-reiterated message all the solid satisfaction which its authors appeared to expect, or that

it tended in the least degree to heighten their *morale.*

The principles of an offensive war may be summarised as follows:—

1. To ensure superiority in numbers, quality, and training of troops.

2. To provide transport adequate for all possible requirements and all possible eventualities.

3. To carefully organise the bases and lines of communication.

4. To secure the initiative, by swift and sure movement from the outset.

5. To move rapidly towards a well-defined objective, seeking decisive battles.

6. To consolidate each step of the advance, protecting the communications, clearing the flanks, and establishing secondary bases as may be necessary.

7. To effectually link the various component portions of the Army, so that no portion may be exposed to the risk of defeat in detail.

The principles of a defensive campaign, as follows:—

1. To carefully prepare the theatre of operations, strengthening defences, and organising successive lines of resistance.

2. To assure communications of all sorts.

3. In certain cases, to prepare for the systematic devastation of the country over which the enemy must advance. Or, if this be inadvisable, to ensure at least that every possible obstacle is placed in his path, and that resources which might be of use to him are removed.

4. To establish a "reduit," where a final defence may be made.

5. To concentrate the bulk of the defending forces at a sufficient distance from the invader to ensure their not being overwhelmed by his first rush, while watching and detaining him by mere mobile detachments.

6. To break, if possible, the cohesion of his first rush by the use of fortified positions which he cannot afford to neglect.

7. To retire methodically when necessary, not necessarily shirking engagements, but offering as far as possible "rear-guard" resistance, and that on carefully-chosen and prepared positions.

8. To be ever ready to seize upon the mistakes and mishaps of the invader, and to turn them to advantage by a sudden resumption of the offensive.

9. To entice the invader, if possible, into difficult terrain, and away from vital points.

10. To exercise every artifice, every strategem, for his discomfiture.

Perhaps the two most brilliant offensive campaigns of military history are those of Napoleon in 1805 and 1806.

The first commenced on the 25th September, 1805, on which date Murat and Lannes crossed the Rhine at Kehl. Mack, with 30,000 Austrians, capitulated at Ulm on October 17th, and the campaign culminated in the decisive battle of Austerlitz (a typical offensive-defensive action), where, on December 2nd, the Russians and Austrians were overwhelmed with a loss of 15,000 killed and wounded, and 20,000 prisoners.

The second campaign opened on October 8th, 1806, and was decided by the simultaneous victories of Jena and Auerstadt on October 14th, the power of Prussia being entirely shattered within seven weeks.

As a model of defensive warfare, Wellington's Portugese Campaign of 1810 is often cited, no writers being more lavish in praise of the strategy which baffled Massena before the Lines of Torres Vedras than French military historians.

THE OFFENSIVE IN "SMALL WARS."

While dwelling upon the paramount importance of the offensive in so-called " small " wars, *i.e.*, wars undertaken by Regular troops against Irregular or only partly disciplined forces, Colonel Callwell points out that the very lack of organization, the mobility, and the general " independence," of such adversaries places them in a position of considerable strategic advantage over their Regular (and, therefore, highly-organized) opponents.

This strategic disadvantage must be redressed by the tactical advantages which the latter enjoy by reason of superior armament, cohesion, and training.

Hence, to force the enemy to as many decisive engagements as possible, and to promptly follow up a success, are prominent principles in the conduct of a " small war." (See " Small Wars," Chapter VIII.)

THE COMMAND OF THE SEA AS INFLUENCING THE CHOICE OF OFFENSIVE OR DEFENSIVE.

Most of the above remarks have been especially applicable to the case of a Continental Power, having extensive land frontiers, inviting attack, or facilitating offensive measures against a conterminous State, but the same general principles are equally applicable in the case of a State which depends mainly upon sea power for its military position.

A navy is essentially an offensive weapon. It can accomplish nothing by keeping to port. To seek for and defeat the hostile fleets is the *raison d'être* of a navy.

No other form of action can ever be contemplated by a naval officer.

Let us assume that a vigorous naval offensive produces decisive naval (tactical) results, and that our navy has sunk, captured, or driven to shelter, and there blockaded, every hostile warship. Let us even assume that our naval superiority is so clearly established that even a *guerre de course*, the harrying of our mercantile marine, is out of the question.

We shall have gained the "command of the sea." But what is to happen then? Operations are at a standstill.

Across, perhaps, a narrow strait, two nations are grimacing and gnashing their teeth. But neither can hurt the other, because of the little water in between.

Our war vessels may indeed bombard a few land defences, but a naval bombardment is surprisingly ineffective, a series of them is a series of pin-pricks, and they are costly and somewhat dangerous.

Is peace then to be concluded?

Possibly, if by our command of the sea, we have succeeded in making things sufficiently unpleasant for our opponents ashore.

But what if our opponent is merely suffering inconvenience? Much depends whether sea communications are vital to him, or not. If they are not vital, and if our adversary possesses other communications overland, sufficient for his needs; above all, if his be a "self-contained" State, producing what its inhabitants require, these may indeed be smarting under the loss of several expensive battleships and cruisers, but they will not have experienced all that compels a spirited people to sue for peace.

Are we, then, to make overtures, in our hour of victory? And, supposing that peace were concluded, could it be either satisfactory or lasting?

If, on the other hand, sea communications are vital to our opponent, will he not possess a navy little inferior to our own, or will not his diplomacy have succeeded in concluding an alliance with another Power, whose naval resources, added to his own, may well be considerably superior to ours?

In that case, it may not be so easy to obtain the command of the sea, or to retain it if it be once won.

The great development of torpedo and submarine craft will render the blockade of a port a far more serious operation than it has been hitherto, consequently it will be increasingly difficult to obtain complete mastery at sea.

But it may well be possible to obtain an overwhelming supremacy in some particular waters, and to hold it, in spite of torpedoes and submarines. All coast-lines are not suited to their employment, and they cannot venture very far from port, or cruise far from supporting squadrons. The latter we can sweep from the seas to which we devote our attention.

Does not everything point to the necessity of assuming the offensive upon our opponent's territory?

To fail to do so would be to deprive ourselves of seven-tenths of the advantages conferred by our "command of the sea."

Whether we shall be content to undertake land operations against the distant colonial possessions of our opponent, or whether we shall boldly seek him on his mainland, must depend largely upon the military ardour of our people.

It may be that we have no desire to acquire fresh territory in distant climes, our enemy's colonies may not be worth the taking. On the other hand, outraged feelings may clamour for the bolder course. In time of profound peace, we may indeed stand aghast at the very audacity of the notion, but in all probability we should not fight single-handed.

Great Britain has fought before upon the Continent of Europe, not without honour or success, at an epoch when her alliance was courted by many who now affect to despise and revile us.

She has fought upon the Continent of America. She has recently emerged from a prolonged struggle on the Continent of Africa,

which assuredly would not have cost her so much blood or treasure, had she appreciated the fact that such exertions might well be required of her.

The results which we hope to produce by command of the sea are tangible only in the form of pressure brought to bear upon opponents who live on shore, and must remain incomplete in the absence of the power of assuming the offensive on land.

Whether a nation dwell upon an island or upon a continent, navy and army are complementary in the total of military potential, and either is incomplete without the other.

Steam, and the enormous carrying capacity of merchant vessels, facilitate the transport of troops oversea, but the operation of disembarking on a hostile shore has not been rendered much easier by improved appliances. Nor will command of the sea, however complete, remove the difficulties and dangers.

Perfected communications will render it impossible to conduct the embarkation of troops with secrecy, and will give ample notice of the approach of a hostile fleet of transports.

To disembark in face of the concentrated

forces of a powerful land army is not a promising beginning for an offensive war.

It may be possible to land sufficient troops to seize a weakly defended port, preferably one situated at the apex of a small peninsula, by a *coup de main*, and to establish there a base. But even then, difficulties would only have begun. Such action is not very probable. It is more likely that the disembarkation would be effected on friendly territory, when, except for the preliminary journey by sea, the future action of the land forces would not differ in many particulars from that which would be characteristic of a purely "land" power.

A section of the lines of communication would be by water, and would be guarded by ships in place of soldiers and field works; this section would probably cause less anxiety than many a section on shore, and that would be about all.

Command of the sea is, of course, essential, even for this, and will render possible a wide range of choice in deciding on a point of disembarkation. It will further facilitate a rapid shifting of the base, for example, should an important port on the enemy's own coast-line fall to our land forces.

Naval offensive action will cease upon the

command of the sea being gained, unless, indeed, it can obtain rare opportunities of co-operating within range of its guns.

THE INITIATIVE.

Supposing that we are in a position to operate so that our movements dictate to our opponent the course which he must pursue, we are then said to "possess the initiative."

It is, of course, usual for the party possessing the initiative to undertake offensive operations towards a definite objective, and therefore the term "initiative" ordinarily means offensive initiative. Yet a commander executing a masterly strategic retirement, such as Wellington's to Torres Vedras, cannot be said to have lost the initiative, because his opponent's movements, although offensive in character, are yet dictated, and may not, for example, follow a direction desired by the pursuer.

The possession of the initiative, then, implies that we hold the cards and the lead, while the adversary is compelled to play up to our hand.

By utilising to the full the powers conferred by the initiative, we hope to draw the thick

curtain of the fog of war around our plans and movements, rendering it difficult for our adversary to divine our intentions, and to give him no time for counter-moves, even when he has divined them.

We hope, above all, to compel him to abandon his own plans in order to oppose ours.

He who waits and ponders, weighing his "intelligence," while his opponent is moving and marching, may indeed arrive at a correct deduction, but will often find that he is too late to put his resolutions (based upon that deduction) into practice.

On the other hand, he who has a clearly defined objective, and strains every nerve to attain it, has already, perhaps before a cartridge is burned, acquired a superiority over his opponent, who must first see through the various moves and dispositions, and then formulate his own.

A well-utilised initiative means a rapid, secret, assured progress towards a definite end, the opponent's movements being correspondingly doubtful, halting, and aimless.

The power of the initiative may be guaranteed us from the outset, by our superior dispositions of troops, powers of concentration, or

geographical situation, or it may be acquired upon the battlefield as a fruit of tactical success.

Once gained, it is to be retained at all hazards, for *ordres*, *contre-ordres*, *désordres* are invariably the perquisite of the nation or leader who plays "minor hand" in war in consequence of its or his own military shortcomings.

It has been said that an unsuccessful leader can almost always adduce, after the event, a thousand reasons for failure, excellent in themselves, and that without exceeding the bounds of veracity; but that these reasons, if analysed, will often show that ill-success was directly attributable to the fact of his opponent being gifted with a fuller measure of those qualities which enable their possessor to seize opportunities, and snatch the initiative from more feeble hands.

Inasmuch as "it is not in mortals to command success," it by no means follows that invariably success will crown the assumption of the initiative, still less that it will follow as a consequence of rash or ill-considered action, however "brilliant."

In fact, the terrible efficacy of modern firearms and the serious embarrassment which the defeat of a portion may entail upon the whole,

strongly indicate the need for prudence allied to sagacity.

But military opinion, and military history, are lenient towards him who fails, having made the most of his opportunities, while both alike are unsparing in their condemnation of the unready, and the undecided.

THE DIFFERENT KINDS OF "OBJECTIVES" IN STRATEGY.

Most wars will see one of the belligerent Powers embarking upon hostilities with a definite aim. That aim may be praiseworthy or the reverse, in any case it is usually political.

This Power will have entered upon, or will have expressed its intention of entering upon, a course of conduct which will run counter to the interests of its adversary, interests which again may be worthy of respect or the reverse.

Protests and representations having failed to effect a settlement, hostilities break out, war is declared by one of the parties to the dispute.

That party whose action has originated the quarrel will seek to impose its will upon the other, will, in fact, have a *positive political objective.* Its adversary will seek to evade and

resist, and will have, perhaps, only the *negative political objective* of "resistance" in view at the outset. It may, however, later on, and especially if successful, adopt a positive political objective on its own account.

Assuming that the cause of rupture is of a sufficiently vital nature to lead both parties to avow themselves unwilling to yield unless compelled to do so by exhaustion, the result will be a *war à outrance*, in which each will seek to shatter the military power of the other, and to impose its will.

As regards the efforts to this end, each is limited only by civilisation, by the "Laws of Nations," by the "Customs of War," and by considerations of expediency. That is, of course, supposing that both belligerents belong to the category of "civilised peoples."

The military leaders of each belligerent must formulate, if this has not already been done, a "plan of campaign," aiming at a definite *military* objective.

Without a definite military objective, military operations become mere chaotic movements of armed individuals, armies rapidly melt into mobs, generals are as compasses without needles.

Bearing in mind the fact that the military power of a State must be shattered before, and as a means to, the imposition of another's will, and that the *organised fighting forces* constitute the most important element in the military power of a civilised nation, it is clear that the overthrow of these forces, in a manner as complete as possible, must be the PRIMARY OBJECTIVE of Strategy.

The drain upon the resources of a State which is caused by the prolonged retention on a war-footing of the enormous forces of the present day also renders it of the highest importance that this overthrow should be RAPID as well as complete.

Moreover, it is necessary to render it impossible for the adversary to create fresh forces. But the mere "moral effect" of severe "battle-losses" will not suffice to ensure this, in the case of a spirited people fighting for an object they deem essential to themselves, so that it is usually necessary to "effectively occupy" a more or less considerable extent of the hostile territory. Effective occupation of a territory means that it is of no further use as a source of supply to the adversary, and can neither furnish him with men or animals or material of war.

The particular provinces or localities which must be occupied will be those which offer the most considerable opportunities of supply, and which comprise the centres of political organization, and the chief networks of communication.

These objectives are SECONDARY, the overthrow of the hostile fighting forces always remaining of PRIMARY importance. If possible the pursuit of both primary and secondary objectives should proceed together, but when this is for any reasons impossible, every nerve should be strained to bring about decisive actions, occupation of territory, etc., being postponed for the time being.

In such a war, between civilised States with settled institutions and a central government, the most important of the secondary objectives will always be the hostile capital.

Effective occupation of a civilised capital city will dislocate the trade, ruin the credit, and strike at the heart of the State. If the attainment of this secondary objective synchronises with the defeat and demoralisation of the bulk of the organised forces in the field, the ordinary result must be the ending of the war. All the nerves of the complex organisation of a civilised nation centre in the capital, and a heavy blow

struck at the principal "nerve-centre" is necessarily fatal.

During the early operations of a great campaign, an invader will try to economise and spare his resources, so far as is compatible with the retention of the initiative, and with a vigorous offensive, in order that he may retain sufficient energy to deal the final *coup de grace.* His action will be a *crescendo* of effort.

Such a war is most likely to be brought about by long-standing racial antipathy, or by aggression which threatens a spirited people with the loss of their independence.

No study could be more absorbing than that of the various probable and possible causes of future wars. It is usually fairly easy to recognise the conflicting interests, the probable points of friction, of the present day. Considerations of commerce will be found to indicate nine-tenths of these points.

International rivalry in trade will cause most of the wars of the immediate future, for no nation can face with equanimity the loss of profitable markets, but each must seek for fresh in the now limited extent of unappropriated territories.

Later yet may come a struggle for mere

existence, wars may rage for the possession of territories capable of growing corn, for the control of the last available coal-fields of the world, for the ever-diminishing stores of "fixed nitrates" (at first sight it is difficult to see why a mere chemical compound may prove worth fighting about, but the difficulty will be cleared up when it is realised that nitrates are essential to cultivation on the heroic scale necessary to supply the wants of an ever-increasing population).

But these are matter for speculation, after all, we are mainly concerned with the needs of the present and of the immediate future.

Often, however, a war *à outrance* may be impossible or inexpedient for one or other of the belligerents, whether by reason of relative geographical position, hopeless disparity of resources, or because the points at issue are not deemed of primary importance.

In such cases other objectives are frequently sought.

For instance, should the *causa belli* be merely disputed territory, the occupation of that territory may for the moment be the principal objective, political and military, though, indeed, it may be that developments will follow.

Examples.—Campaign of Napoleon III. on the Mincio; Occupation of Silesia by Frederick II.

Again, where vast resources and distances are in question, it will often be impossible to attain the final political objective in one campaign. The primary military objective will then be the seizure of a point or points, the possession of which will facilitate a further advance, even if it does not bring about indirectly the desired result.

In savage and colonial warfare objectives, political and military, take a number of shapes, according to "the nature of the ground, the character, organisation, and resources of the enemy."

Interesting examples of "special" objectives taken from our own military history are:—

1. SEBASTOPOL.—"Situated at the extremity of an obscure and unimportant province, the conquest of which would be no step towards the invasion of Russia, this city, formidable by reason of its docks and arsenals, was, from its proximity to Constantinople, characterised as a standing menace to Turkey, and as such was of sufficient importance to be the object of the vast

efforts made in that war by France and England." (Hamley).

2. THE NILE AND CHITRAL EXPEDITIONS.—Each undertaken with the relief of a beleagured garrison as objective.

3. THE TIRAH EXPEDITION.—Our severest "hill" campaign, in which the primary objective was to reach and overrun the inaccessible valleys which formed the retreat of Afridi and Orakzais, and which these turbulent warriors boasted could for ever defy the efforts of any invader.

Generally speaking, in campaigns against only partially civilised or uncivilised nations, the capital (should one exist) is of inferior importance. It may, however, especially in purely "savage" warfare, prove the reduit, the core of resistance. (Callwell. "Small Wars.")

Lord Wolseley says:—"In planning a war against an uncivilised nation, which has perhaps no capital, your first object should be the capture of whatever they prize most, and the destruction or deprivation of which will probably bring the war most rapidly to a conclusion."

According to circumstances, this may involve the destruction or carrying off of flocks, herds, and crops, the demolition of villages, the capture of a savage potentate, the scattering of

the ashes from the tomb of a heathen demi-god, or even such an apparently trivial objective as the seizure of a hideous "Ju-Ju."

In suppressing an insurrection, the object is to make each individual insurgent experience in *propria persona* the consequences of his having borne arms, to capture and bring to trial the prime movers of rebellion, and to provide against any possibility of recrudescence.

Where, however, relations with the folk in insurrection have never been intimate or cordial, a considerable leaven of leniency towards the "rank and file" of the insurgents may not be misplaced, particularly if it is desired to cultivate better relations in the future. These people will often be the mere dupes of scheming ringleaders, for whom the severest penalties should be reserved.

STRATEGICAL DIVISION OF FORCE.

"Interior" and "Exterior" Lines.

It is generally laid down as a "principle" that strategical division of force in a theatre of war is wrong. That is to say, it is bad strategy to divide a force unless good cause for division

can be shown, for no strategical "principle" is sacrosanct.

Much depends upon whether the war be a "civilised" or a "small" war, whether the separated fractions are directed on to the same, or on to different objectives.

When we speak of "division" of force, we mean usually so complete a separation of components that each is launched toward a different objective. If the objective be the same for all components, the case may amount to "division," or merely to "an advance upon exterior lines."

Division of force may be perfectly correct if each portion of the divided army be strong enough in itself to deal with the maximum resistance which *can* be opposed to it by the enemy.

Thus, an army of 180,000 men, operating against an enemy equal as to training, *morale* and armament, but only 20,000 in number, would be quite justified in dividing itself into three self-contained fractions each 60,000 strong, should circumstances require it.

For it is unlikely in the extreme that the enemy could at any time throw his whole weight against either fraction, and even if it were pos-

sible, he would still be outnumbered by three to one at the point of contact.

Division of force is *primâ facie* bad, where the fractions are directed upon separate objectives from the outset. The further apart the objectives, the worse the consequences of the division.

If strategical division be necessary, as it sometimes is, and if the fractions are directed on to distinct objectives, then each fraction *must* be superior to the force with which the enemy can cover the objective aimed at by that fraction.

(The "superiority" (as usual) may be partly numerical, and partly moral, or be assured by better armaments, for numerical superiority is not everything, although it can rarely be dispensed with.)

The operations of each fraction will then constitute a more or less distinct campaign, in which the essentials for success are the same as if that campaign were the only one in progress. For, though there may be strategical co-operation, no tactical co-operation can be ensured at first.

Baron COLMAR von der GOLTZ points out that the initial strategic error of the Boers in October, 1899, was the division of their forces

into fractions directed on to objectives so widely separated as Ladysmith and Kimberley, with the result that they were successful at neither point.

Since the Boers held the initiative, this error was unpardonable from the point of view of the strategist. We also committed the same error, in attempting the simultaneous relief of Ladysmith and Kimberley, but we had at least the excuse that we were conforming, of necessity, to the Boer initiative.

It would, perhaps, be impolitic to discuss at this moment in what manner the Boer dispositions might have been bettered.

One thing, at least, is certain, that in every civilised war it is essential to act at the outset of a campaign with ALL AVAILABLE FORCES, AGAINST THE ENEMY'S MAIN ARMY, WHICH FORMS THE PRIMARY OBJECTIVE. If his main army be defeated, it may be broken into two or more fragments, the following-up of which may, if their lines of retreat be sufficiently divergent, necessitate a division of the victorious army.

In "small wars," strategical division is sometimes necessary, often desirable.

In campaigns against Afghanistan, it has usually been necessary to aim for both Kabul

and Kandahar, and the topographical conditions call for at least two distinct lines of advance.

Again, in the small war the entire operations are as often as not governed by considerations of supply and transport, and it may well be impossible to move all the supplies required for the whole force by one route.

If the theatre of war be mountainous, one of the effects of the mountains upon operations (see Section on Mountains), is that the cramped areas available for fighting often forbid the deployment of more than a fraction of a given column. There can, therefore, be no use in increasing the length of a column, if its centre and rear are forced to remain spectators of operations in which they cannot find room to take part.

In both the above cases division is indicated.

Finally, in the "small war" MORAL EFFECT counts for a very great deal, and "the spectacle "of several well-appointed columns of Regular "troops pouring into their territory (by various "inlets) alarms civilised races and savages more "than would the appearance of a single army." (Colonel Callwell. "Small Wars.")

Semi-civilised races and savages rarely have sufficient military genius to take advantage of

the weakness caused by division of force, which helps to perplex and confuse them.

Examples.—The Ashanti War of 1874; the Zulu War of 1879.

Colonel Callwell also mentions that in many cases there must be great doubt as to the actual nature of the topographical conditions of those inhospitable regions into which regular armies are sometimes required to penetrate. It is sometimes impossible to say with certainty that a given objective can be reached by a given line of advance. Under these circumstances it is clear that a reasonable multiplication of the number of lines of advance will increase the chances of success by one.

In guerilla warfare, division of force becomes not merely advisable, but essential. It is the recognised method of conducting operations. The regular army must copy the methods of the guerillas as far as their "regularity" permits, and must adapt themselves to circumstances, meeting raid by counter-raid, rivalling, if not surpassing, the guerillas themselves in energy, endurance, mobility, and determination.

But if the theatre of war be extensive, mere chasing of scattered bands by flying columns will not be efficacious unless limits are placed to

the guerillas' retreat. This may be effected by the convergent action of several columns, or, better still, by the action of several convergent columns, PLUS a physical obstacle, against which the enemy's bands must be driven, and where they must either break through or fight.

Inaccessible mountains, a hostile frontier, a broad and deep river, or the sea, may serve, but if no such natural obstacle presents itself artificial substitutes must be found, such as the blockhouse lines and wire fences of South Africa.

Obstacles *alone* will not effect anything, as the Cuban "trochas" witness, the enemy must be "herded" on to them by the combined action of many small, mobile, and well-equipped columns.

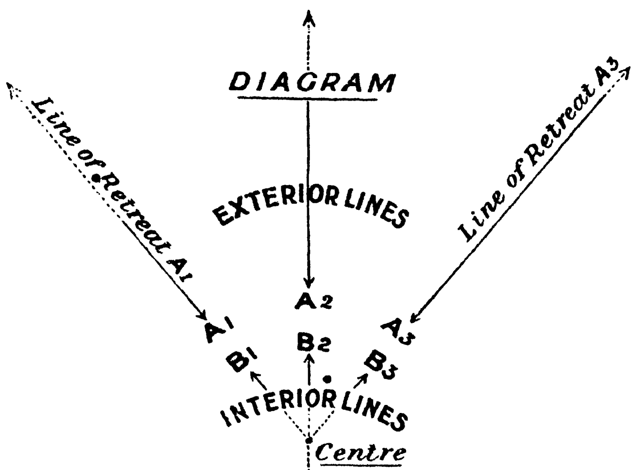
Now and again it must be expected that one of these columns will fail before an unexpected concentration of guerilla bands, which must, however, pay dearly for a temporary success, more dearly than they can afford.

To revert to the conditions of the "CIVILISED WAR." Napoleon once wrote that the whole art of war reduced itself to one great principle, to assemble at a given point a greater number of men than the adversary. He was himself the greatest exponent of the principle

of acting upon "interior lines," and his observation was perfectly justified, in his day.

A FORCE, OR AN ARMY, WHOSE COMPONENT PARTS ACTS OUTWARDS, FROM A COMMON CENTRE, AND WHOSE NATURAL LINE OF RETREAT (FOR EACH COMPONENT) IS TOWARDS THAT CENTRE, IS SAID TO ACT ON "INTERIOR LINES" WITH REFERENCE TO AN OPPOSING FORCE WHOSE COMPONENTS, ACTING FROM VARIOUS POINTS UPON THE CIRCUMFERENCE OF A CIRCLE TOWARDS THE SAME CENTRE, MUST, IF DEFEATED, BE FORCED ALONG DIVERGENT LINES OF RETREAT.

CONVERSELY, THE SECOND FORCE IS SAID TO ACT ON "EXTERIOR LINES" WITH REFERENCE TO THE FIRST.



The great advantages claimed for "interior" lines, and the great results which have been obtained in the past by their skilful employment, may be explained as follows:—

Imagine an Army "A," divided into several fractions a_1 a_2 a_3 . . etc., approaching an Army "B" (concentrated), by convergent lines, but with each fraction a_1 a_2 a_3 . . etc., separated at the moment we are considering by considerable intervals.

The commander of "B" might then employ comparatively insignificant fractions of his force, b_1 b_2 . . etc., as "containing" and "blocking" forces, which should operate against a_1 a_2 . . . etc., and hold them to their ground. This they could do by reason of the advantages enjoyed by the tactical defensive, and by clever stratagems, exaggerating their numbers.

While thus "amusing" fractions a_1 a_2 . . . etc., the commander of "B" might fall suddenly and resolutely upon another isolated fraction a_3, with the bulk of his remaining effectives, and be assured of a temporary numerical superiority as against a_3.

He would then defeat a_3, push it back along its line of retreat, and so widen the gap which separated it from a_1 a_2. . . ., etc.

He would then detach a small body, sufficient to keep a_3 on the move, turn back with the remainder, and repeat the process on another fraction a_2. And so on, each time assured of a temporary numerical superiority at the decisive point, each time pushing back the defeated fraction and detaching a sufficient force to follow it up.

It is (theoretically) only necessary to make sure that the containing forces b_1 b_2 . . ., etc., are strong enough to perform their task, and that sufficient "touch" is maintained to prevent the enemy insinuating himself into any gap between the fractions.

This method, then, calls for a commander of great skill and determination to command the "centrifugal" army, subordinates of resource and energy to command its fractions, highly-trained, highly-disciplined, and highly-mobile troops, and COMPARATIVELY SMALL NUMBERS. For it is clear that large masses cannot be moved hither and thither with the celerity which is essential to success.

It has produced great results against opponents who, though numerically superior, lacked energy and precision of direction.

In Napoleon's able hands it produced dramatic

successes when worked with small numbers, considerable and conspicuous effects when exploited upon a larger scale.

It is a *tour de force* by which a numerically inferior body can reap the fruits of numerical superiority by ensuring, for the moment, superiority of numbers at a decisive point.

As such it was useful in the past, and as such it will be useful in the future, particularly when employed against an inferior, slower-thinking commander. For the latter must experience many of the doubts and difficulties which beset him who plays at the "three-card-trick" with a professional in a railway carriage.

The efficacy of the method has been diminished by the conditions of modern civilised warfare, for the following reasons:—

1. The fractions of the "centripetal" army are less hampered by difficulties of inter-communication. Thanks to the telegraph and the telephone (now as essential to an army as the boots of its soldiers), these can feed each other with information, or be directed by one master-mind. It will be far more difficult to deceive and "contain" the "centripetal" fractions, if these are well acquainted with each other's position and progress.

2. If the admittedly enhanced power of the tactical defensive appears at first sight to favour the entire operation, by favouring the task of the "containing" fractions, it must be borne in mind that this very characteristic will handicap the "offensive" portion of the centrifugal army.

Everything hinges upon the possibility of defeating, forcing back, and following-up an important body of the centripetal army. Each one of these operations is more difficult than formerly. For combats are more prolonged, tactical victory is more difficult to achieve, and defeat is often less decisive, than in the past. Time is here all-important. The containing fractions cannot "hold" superior forces indefinitely, and the offensive action may not obtain a decision sufficiently promptly to admit of the theoretical procedure being pursued.

3. The very large numbers which would be placed in the field by modern civilised nations could not possibly be handled with the celerity which was possible in the days of small armies.

To operate successfully on "interior" lines extreme mobility is indispensable.

On the other hand, ENVELOPMENT, both strategical and tactical, has gained in efficiency. It is not a "new" method, Napoleon suffered

from it at Leipzig and Waterloo, and the Prussian plan at Königgratz was essentially one of envelopment. Bourbaki was crushed between von Werder and Manteuffel in January, 1871.

The envelopment of a concentrated force is almost always best effected by the convergent advance of fractions whose general direction is centripetal or convergent.

If the convergent fractions be sufficiently coherent, no opportunity should be afforded the opposing commander of crushing either of them in detail.

Having regard to the very large numbers of modern armies, and the correspondingly wide frontage which would characterise their strategic deployment upon a common continental frontier, it is fairly safe to assume that the initial operations of each would necessarily be frontal. Each could not be equally successful, or equally unsuccessful, along that entire frontage.

At some point or other one army would push back the opposing forces, and thus "break" the hostile "front." If this wedge were inserted near a flank, or if *two* such wedges were inserted nearer the centre, a portion of the opposing army might be isolated by an enveloping movement, and crushed, while the other portions were

"held off" by operations framed upon the idea of "interior lines."

When such enormous forces as those of France and Germany are contemplated, it would appear impossible that the movements of their entire "armed strength" could be directed by any one commander dealing with anything save the widest strategical problems. Moreover, considerations of supply would compel division of force, possibly into four or five, or more, "armies," acting towards one common end, but to all intents and purposes independent.

HOW POLITICAL CONSIDERATIONS MAY AFFECT THE PLAN OF A CAMPAIGN.

1. It is often necessary to limit military operations either in time or space, having regard to the feelings of neutral States.

The maintenance of a neutral attitude by a State may depend upon the non-violation of its frontiers, and upon its interests remaining uncompromised. (It is the duty of a neutral to disarm and retain until the conclusion of hostilities, any armed parties of either belligerent which may cross its frontier.)

2. The inclusion of the territory of a neighbouring State within a theatre of operations may result in its forces being added to one's own.

Example.—In the wars of the French Revolution, the Austrians were compelled to hold the line of the Rhine, owing to the danger of leaving uncovered the German States of Baden, Würtemburg, etc., whereas there were sound military reasons for adopting a different course.

Similarly, in the Jena Campaign, Prussia deemed it expedient to cover Saxony and Hesse-Cassel, for the purpose of ensuring the adhesion of these States, whereas her best line would have been that of the Elbe.

3. By winning over doubtfully disposed States to neutrality, a belligerent Power may be enabled to devote its entire attention and resources to the attaining of its objective, and so may be in a position to undertake a plan of campaign more vigorous than would have been practicable had it been necessary to prepare for other eventualities.

Example.—The Boer War. Had any other Power assumed an openly hostile attitude, as appeared far from improbable at one time, it might well have been impossible to prosecute the campaign with the same vigour.

4. It may often happen that only an early and decisive success can prevent the intervention of a third party, or deter an undecided Power from throwing in its lot with the adversary. For example, a winter campaign may be decided upon for such a reason, whereas purely military considerations might suggest the protraction of negotiations, with a view to rupture at a more convenient season.

Example.—The crushing success of Napoleon at Austerlitz in 1805 kept Prussia aloof from the coalition.

By their immediate success in 1870, the Prussians put intervention out of the question, if, indeed, it had ever been contemplated.

5. In the event of ill-success, diplomacy may assist the worsted forces of its State, delaying the advance of a victorious opponent, or even securing the active co-operation of an ally.

6. In the case of Allied Powers, or of coalitions, policy exercises much influence over the military operations. Thus:—

(*a*) One party may desire to pursue matters further than another.

(*b*) In the course of, or in consequence of, the prosecution of operations, jealousies, rivalries, and differences are very likely

to arise, necessitating tactful diplomacy, and possibly a modification of the original plans.

(*c*) These differences are especially likely to arise in consequence of failure, since it must be rare that all parties "stand to lose" equally.

(*d*) Occasionally a State may thrust its alliance upon an intending belligerent, with the intention of preventing the latter from obtaining the exclusive benefit of success.

Example.—China.

When opposed by Allied Powers or by a coalition, a State will endeavour to ascertain the weak spots which are certain to exist in the allied armour, and the plan of campaign will aim at striking on the weak points thus disclosed.

Interior (or "home") policy also must always influence very strongly the plans for any campaign, thus:—

1. It will have already influenced the value, constitution, and general "preparedness for war" of personnel and material, also the possibilities of rapid mobilisation and concentration. It will, therefore, decide what plans are possible, or the reverse, in any given contingency.

2. A Government which does not enjoy the full confidence of its people is often impatient of success, since military reverses may lead to its downfall.

Cases are not wanting in which Governments, thus situated, have insisted upon operations which were, to say the least, inadvisable, which hampered the commander in the field, and which sometimes led direct to disaster.

Example.—McMahon's march to Sedan.

3. Divided responsibility in a Government paralyses military preparations for war, and often operations in the field.

4. A shrewd belligerent will often be able to turn to his advantage political discord within his opponent's State, and may, if well served by active agents, cause immense embarrassment.

Example.—The machinations of ex-President Kruger, and of his European agents, during the Boer War.

Conversely, since the international influence of a State is decided, not by its wealth, luxury, refinement of thought and life, not by the excellence of its motives, nor by the subtlety of its diplomacy, but by its MILITARY POWER, it follows that its political pretensions must be

controlled, and, if needs be, limited, by its military potential.

Extravagant pretensions, unbacked by military power, can only result in painful humiliation.

Moreover, since military success can alone secure for policy the attainment of its aims, it follows that a correct appreciation of the military situation is required to fix the political objective of a campaign.

A policy which is heedless of the military situation, or a diplomacy which rushes ahead of preparation for the war its action may precipitate, can only lead to certain confusion and disappointment.

It will readily be recognised that a State in which the reins of supreme military and political direction are grasped by one and the same hand, enjoys, when war is imminent, an enormous advantage in co-ordination and cohesion of effort, over an opponent in whose councils the soldier and the statesman are separately represented. Still more apparent is the advantage, if in those opposing councils soldier and statesman are segregated by antipathy, but the hand must be skilful and firm, the guiding brain cool and calculating.

THE SELECTION OF A THEATRE OF OPERATIONS, OF A ZONE OF OPERATIONS, AND OF A LINE OF OPERATION.

In bygone days, when armies were comparatively small and "theatres of war" (vide definition) relatively enormous, when great Powers had interests and ambitions which overflowed nominal frontiers, when, in short, Empires and Republics were in the making, there was considerable scope for skill on the part of a strategist plotting an offensive campaign against a rival. In all probability he might have the choice of several widely-differing arenas in which to operate against the same antagonist.

To take the example of the Italian Campaign of Napoleon in 1800. As in 1796, Napoleon could strike at Austria either in Northern Italy, or on the valley of the Danube, viâ the Southern States of Germany.

His plan of campaign was to take the offensive in South Germany, to stand on the defensive in Italy, and to secretly organise a "Reserve Army," to be thrown into whichever theatre promised the more immediate chance of a decisive success.

In deciding into which scale to throw the "Reserve Army," Napoleon had to consider as follows:—

1. By joining Moreau in his successful campaign on the Danube, he might march *en masse* on Vienna.

2. But the more important Austrian Army was in Italy, it was avowedly meant for the invasion of France, and it was investing a portion of Masséna's Army in Genoa, aided by the English Fleet.

The primary objective of strategy is the strongest fighting force of the enemy.

Napoleon, therefore, led his "Reserve Army" into Italy, and we know that his advent was a strategic surprise of the first order, producing decisive results.

Thus the choice of the theatre of operations was made, and on *military grounds*, political considerations having little effect.

Often, however, it will be found that political considerations may influence the choice of a theatre of operations, even to the extent of outweighing those of "pure strategy." (*Vide* "How political considerations may affect the plan of campaign.")

But "Northern Italy" covers a large area, and,

having decided to make it his principal "theatre of operations," Napoleon had still to determine in which *portion* of that area he would operate. In other words, it remained for him to choose his "zone of operations" (vide definition).

The following passages through the Western and Pennine Alps were available for an advance from France into Italy, viz.:—

1. The Col di Tenda (now traversed by the rail from Ventimiglio to Turin).
2. The Pass of Mont Genève.
3. The Mont Cenis route.
4. The Little or Great St. Bernard.
5. The Simplon.
6. The St. Gothard.

Not only is the principal objective of strategy the enemy's main army, but it is a principle to strike at it where it is most sensitive, *i.e.*, to threaten its communications and line of retreat.

To enable us to ascertain the most sensitive portion of the Austrian forces in Italy, and of their communications, etc., let us briefly review the situation in April and May, 1800.

Masséna's Army was at first distributed as follows:—

1. The right, about 8,000 strong, under Miollis, in Genoa.

2. The centre, about 11,000 strong, under Soult, guarding the crest of the Apennines, at the passes of Cadibona and Bochetta.

3. The left, about 13,000 strong, under Suchet, holding the Col di Tenda, Nice, and the line of the Var.

This Army sadly needed re-organisation, reinforcements, and rest, exhausted as it was by the previous year's campaign, and decimated by sickness. All these reliefs were of necessity denied it.

IT WAS NOT, THEREFORE, A FORCE UPON WHICH NAPOLEON COULD COUNT FOR AN OFFENSIVE CAMPAIGN, AND TO HAVE JOINED THE RESERVE ARMY TO IT WOULD NOT HAVE RENDERED IT CAPABLE OF ASSUMING THE OFFENSIVE.

It was opposed by an Austrian Army 120,000 strong, vastly superior in cavalry and artillery, and distributed as follows:—

1. A corps 50,000 strong, comprising the bulk of the cavalry and artillery, occupied Piedmont, and observed the passes of the Alps.

2. Two other corps under the personal direction of Melas, advanced up the valley of the Bormida, aiming at the French centre.

Melas's intention was to break the French

front, throw the detached right into Genoa, and there blockade it with one corps, whilst he directed the other on the Var.

By the end of April he had so far succeeded in his design that Massena, with 20,000 men, was shut up in Genoa, Soult wounded and captured, and Suchet driven back on the Var, where he offered a brilliant resistance.

The communications of the Austrian Army, thus distributed over a wide front, led back through Alessandria, Coni, and Turin (all fortresses), viâ Milan and Pavia, to Mantua, Verona, and the Valley of the Adige, to Innsbruck.

The centre of gravity of the Austrian forces lay south of the upper waters of the Po, and their front from Turin, northwards, was but weakly held.

Moreover, owing to the topography of Piedmont and Lombardy, all the above communications were drawn "through the neck of a bottle" between Milan and Piacenza, and if that narrow neck could be seized, if a cork could be inserted in the neck, all the divergent communications of the Austrian Army could be affected by the action of a comparatively small force.

CLEARLY, THEN, THE AREA BETWEEN THE PO AND THE SWISS FRONTIER WAS INDICATED AS A SUITABLE ZONE OF OPERATIONS FOR NAPOLEON'S COMPARATIVELY SMALL RESERVE ARMY.

By operating in that zone, he would avoid the Austrian fortresses, strike their front where it was weakest, and reach their communications where they were especially sensitive.

Having chosen the "zone of operations" (again on purely military grounds), it remained to decide by which line of operation that zone was to be reached.

The following passes, etc., were available:—

1. The Mont Cenis route, viâ Susa.
2. The Little St. Bernard.
3. The Great St. Bernard.
4. The Simplon.
5. The St. Gothard.

Let us consider what was happening.

The Reserve Army had been organised in four corps drawn from Brittany, Normandy, Paris, and the depôts of the army in Egypt.

These four corps were marching east, completing their organisation en route, their artillery, etc., was being got ready at Besançon, Auxonne, and Briançon. Depôts of supplies

were formed at Lyon, ostensibly intended for the army in Egypt.

A strong corps of 20,000 men had been detached from Moreau on the Danube, and was marching south to join hands with the Reserve Army, whose strength, even with this addition, would be no more than 60,000, obviously none too many for the task which lay before it.

It was, therefore, most important to effect a junction with this detachment at the earliest possible moment after debouching from the Alps.

As regards the Reserve Army—

1. The Mont Cenis passage would have struck too near the Austrian centre, would not have taken the Austrian communications so decidedly in flank, and would have been far distant from the most direct line of advance of Moreau's detachment.

2. The Little and the Great St. Bernard struck the Austrian front a good deal further from its centre, gave a more decidedly flanking aspect to an advance thereby, and were appreciably nearer to the co-operating detachment.

3. The Simplon and the St. Gothard would have displaced the communications of the Reserve Army too much, and, though they

would have facilitated a junction with the detachment from the Danube, they would have brought about that junction at an unfavourable spot.

Napoleon, therefore, chose the Great St. Bernard for his main point of passage, detaching, however, Thurreau with 5,000 men to demonstrate at Mont Cenis, while Chabran, with a minor column, passed by the Little St. Bernard.

The detachment from Moreau's army, under Moncey, passed by the St. Gothard, which was obviously its most direct route from Ulm. The junction was, therefore, effected at the moment of entering upon active operations.

The subsequent movements were obvious. Demonstrating towards Turin, Napoleon moved rapidly on Novara, passed the Ticino at Turbigo, and had seized Milan by the 2nd of June.

The "bottle-neck" had been corked.

The subsequent operations call for no notice under this heading.

With reference to the passage of Moreau's detachment from the Danube to Italy, vide "Influence of Mountains upon Operations, special conditions."

The above example presents a comparatively simple case, for it will be seen that matters of policy had practically no effect, since Napoleon had no scruples whatever about passing his armies through Switzerland or any other territory which he could overawe. The decision as to both theatre and zone of operations was arrived at purely in consequence of study of the *military* aspect of the situation, no considerations for Swiss feelings being allowed to interfere.

Nor would the Austrians have been more considerate, for it was part of their plan to seize Bâle by an advance from the Danube. But the Switzerland of the present day would view a repetition of such strategy from a very different standpoint, that of a stalwart and patriotic nation declining to permit such incursions on its territory, and prepared to resist any encroachment with a highly-skilled Militia army, eminently suited by composition and training for warfare on its rugged frontiers.

Moreover, all the military requirements of the case pointed in the same direction, and it was not necessary to carefully balance the pros and cons of several alternatives, almost equally attractive.

Napoleon's anxiety for the relief of Genoa was scarcely such as would lead him to utilise his scanty resources in aiding Massena and Suchet by a direct advance between the Apennines and the Ligurian Sea, a line of operations which would assuredly have effected nothing commensurate with its disadvantages.

Genoa might fall, as it did fall before Marengo, but the temporary loss of Genoa and its garrison mattered little in comparison with the results to be obtained from a decisive blow at the Austrian communications.

[Compare the situation in South Africa in November and December, 1899, reading Ladysmith for Genoa, the Tugela for the Var, and Delagoa Bay, with its adjacent Portuguese territory, for the St. Gothard and Switzerland.

The analogy is far from perfect, but we shall see that our regard for the feelings of Portugal, and maybe of other nations, forbade us to think of utilising Delagoa Bay as a base, while the saving of Ladysmith from capitulation to a force of farmer-Militia was deemed of sufficient importance to justify the diversion to that theatre of much of the force intended for the advance through the Free State.]

It may also be noted that in the present day it would be impossible for a Napoleon to so effectively guard the secret of the organisation and movements of a Reserve Army, or to effect so dramatic a surprise.

Modern methods of acquiring and transmitting information would keep a Melas informed of every important detail, and as likely as not the best information might be forthcoming, viâ Hamburg, Rotterdam, or New York.

As further illustrating the principles which underlie the choosing of a theatre of operations, let us take:—

1. *Napoleon's Egyptian Campaign of 1798.*—Realising that England's wealth stood between him and the attainment of his ambitious designs, and that this wealth was in large measure due to her Eastern trade, Napoleon determined to deal a blow at her commercial supremacy by subjugating Egypt, preparatory to an advance on India.

2. *Napoleon's Russian Campaign of 1812.*—At this moment Napoleon was supreme upon the Continent. Only in Spain did Wellington maintain the struggle, while the power of Russia, though humbled at Friedland (*ce piège effroyable où s' étaient tombés les Russes comme un*

troupeau de moineaux effarés), and by the Treaty of Tilsitt, was far from shattered.

The real *causa belli* was that the humbling of Russia was necessary for the absoluteness of Napoleon. The ostensible causes, the failure to close the Baltic ports to British commerce, the irritation of the despot at the frigid reception of his proposal for the hand of the sister of the Czar, the Polish Question, etc., were merely secondary.

This being the character of the war, the obvious political objective was to humble Russian pride, by the occupation of her principal cities, and by proving to all the world that no distances and no climates could stay the march of the Conqueror. We find, therefore, that although Napoleon's primary military objective was the sundering and encompassment of the Russian armies, this objective was cast aside when the difficulties of the task became apparent, for the march on Moscow.

A glance at the map will show that the western frontier of Russia in Europe is divided into two almost equal portions by the marshy banks of the Pripet (Pinsk Marshes).

The northern half, facing East Prussia and Poland, held both the political objectives, St.

Petersburg and Moscow, and also the bulk of the Russian forces.

The southern half, more fertile and richer in nearly every respect, would have favoured the advance of a large force, but would have led that force towards no such objective as Napoleon sought.

Moreover, Prussia was a subjugated and effectively occupied territory, on which the heterogeneous armies of invasion might be safely based, whereas Austria was but a doubtful ally.

Clearly, then, the theatre of war must be the northern of the two.

In it three possible lines of operation offered, viz.:—

1. Tilsitt—Riga—St. Petersburg.

2. Kovno — Vilna — Vitebsk — Smolensk— Moscow.

3. Grodno—Minsk—Kaluga—Moscow.

The Russian forces were strung in a thin cordon extending over the entire frontier from near Memel to the south of Volkovisk.

The western portion of this northern theatre, to 32° E. longitude, was uniformly sterile, wooded, and marshy.

The first line of operations mentioned above lay wholly within this area.

But the second and third struck a far more fertile tract, after passing Smolensk.

These were therefore chosen for the main advance.

It consequently followed that Moscow became the chief objective.

In this case the line of operation decided the objective, and not vice versa, as is usual.

But the entire campaign, both in conception and execution, is not one from which valuable lessons, strategical or tactical, can be drawn. It emphasises, however, the practical impossibility of bringing such a vast, elastically-organised country as Russia to its knees, by any imaginable "invasion."

In all probability, a present-day occupation of Moscow or St. Petersburg, or both, would have as little effect, since the "Government" is of such a nature that it could be perfectly well conducted from any provincial capital.

Likewise with China, millions of whose inhabitants are to-day unaware that the whole concert of Europe, America, and Japan thundered at the gates of Pekin in 1900.

3. Taking the offensive in 1809, Austria could aim at Napoleon in either Germany, Poland, or Italy.

There could be but little doubt as to which theatre promised the more decisive results, so, although the Archduke Ferdinand was to operate in Poland with one corps, while the Archduke John took the offensive in Italy with two corps, the main effort was to be made in the valley of the Danube, with the remaining eight.

It was then necessary to choose on which bank of the Danube to operate, *i.e.*, to choose the zone of operations.

North of the Danube the country was far from fertile, lacked communications, and was cramped by the mountains of Bohemia.

It was not, therefore, suitable for the operations of a large army.

South of the Danube lay a much more fertile tract, abounding in resources, and well supplied with communications.

Nevertheless, the original plan of the Archduke Charles was to assemble six corps in Bohemia, for an offensive operation directed on Mayence, viâ the Main, during which the populace of Southern Germany was to be raised in revolt, while two corps took up a defensive position on the line of the Inn.

But the vigour and decision necessary for such an enterprise was lacking, and this plan

had to be abandoned in view of the rapid progress in concentration south of the Danube which was being made by the French.

Thus an original plan, politically sound, and militarily possible, had to be abandoned on account of inability to put it into operation. This being so, it is not surprising to find that a second (alternative) plan also failed for the same reason, and that victory eventually lay with the commander whose energy and precision enabled him to snatch the initiative from hands more feeble than his own.

Present-day Conditions.

So far as Continental belligerents are concerned, putting aside for the moment raids upon colonies and oversea possessions, there is not now-a-days quite the same scope for skill in selection of the "theatre." Unless in affairs involving alliances and coalitions, conterminous Powers would be restricted to the extent of their common frontiers, which have been adjusted into something like simplicity, and have remained in their present condition for a generation or more.

The Continental strategist of to-day has, then, in some respects at least, simpler problems to

deal with than those which troubled his predecessors.

The enormously enhanced value of railroads in war has resulted in the construction of lines which are, avowedly or not, essentially strategic. The clear definition of objectives, pointed by these railroads, serves to indicate the probable lines of irruption or defence. Means are found to ascertain or deduce the schemes and systems of neighbouring States, and these are closely studied by experts who have more data to work upon than ever Napoleon possessed.

The General Staffs of the Continent hold detailed "plans" for every conceivable contingency, not mere academic dissertations dealing with forces not available, but real schemes which can be put into full operation within an hour or so of the receipt of orders to act.

The fate of each belligerent depends upon its schemes turning out correct with regard to its opponent's intentions, while the schemes of both alike are assuredly drawn up with the idea of anticipating the adversary, snatching the initiative and assuming the offensive.

Moreover, when 1st class Powers are concerned, the enormous forces which would be

placed in the field at the very outset, would require such a wide front for their deployment that in certain cases the whole common frontier, from end to end, would barely suffice.

Consider the eventuality of another Franco-German War, with no allies on either side. The whole common frontier from south of Belfort to the border of Luxemburg measures only about 200 miles, bristles with fortifications, and is equally well served by railroads on either side. The neutral boundaries of Switzerland and Belgium forbid strategic movements by either flank.

The vast armies of France and Germany must confront each other face to face, and the initial movements of each must be uncompromisingly frontal. Who can venture to indicate a probable main line of operation? It is easy enough to point to the *best*, but nothing except the result of the first appalling shocks could determine that which was *possible*.

The solving of that riddle would be worth seeing.

But where frontiers are very extensive, offer more than one facet towards an opponent, where they, or spheres of influence, are ill-defined, where opposing forces are separated by "buffer"

states, the old freedom of choice remains untrammelled.

The Americo-Canadian frontier extends over some 4,000 miles measured along the northern shores of the Great Lakes. But in the event of an Anglo-American war, the main "theatre" would assuredly lie east of the Mississippi, since within that area are situated the strategic points which would form the objectives—Halifax, Quebec, Montreal, and Ottawa on the one hand, Chicago, Detroit, Rochester, and New York on the other. Sea-power, and maybe "lake-power," would play conspicuous parts.

Operations along the remainder of that vast boundary, which, as Dr. Miller Maguire puts it, "crosses every variety of geological accident," would probably be confined to raids and counter-raids, unconnected with, and exerting but little influence upon, the chief struggle. Strategy would have the fullest scope.

On the assumption of an American initiative, the State of Maine suggests itself as the probable zone of the opening operations, lending itself as a base for a movement directed at Nova Scotia and Halifax.

The question of "facets" will be deferred to the discussion on "Shape of frontiers."

Speaking of the influence of "buffer" states, the example afforded by our N.W. frontier of India, with Afghanistan as the "buffer," will at once occur.

The disputations of the opposing schools as to how a Russian invasion from the North-West should be met, were long and often bitter. The one claimed that the only correct defensive line was that of the Indus, *i.e.*, that the advance on India should be stemmed within the borders of India. The other equally strenuously maintained that a much more "forward" position was desirable. Political and military common-sense has decided in favour of the "Forward School," and a Russian advance from this direction would be met in Afghan territory.

Alexander the Great, Timurlane, and many barbarian hosts have traversed the Hindu Kush in all directions; their achievements read like miracles. But for such an army as would be required for the invasion of our Indian Empire, the approaches available are strictly limited, and indicated, as usual, by strategic railroads.

The Russian Trans-Caspian Railroad from Krasnovodsk and Michailovsk, on the eastern shore of the Caspian, runs to Merv, through Charjui on the Oxus, to Bokhara, Samarkand, and Adijan.

A branch from Merv runs to Kushk on the Afghan frontier, distant 80 miles from Herat, whence a well-defined caravan route leads to Kandahar. Kushk is about 450 miles from Chaman, the Baluchistan terminus of the Indian Railroad system. Chaman is distant but 70 miles from Kandahar.

A shorter branch, east of Samarkand, leads to Tashkent, and may soon be connected to Orenburg, following the course of the Syr Daria, to Omsk, on the Irtish, thus placing Kushk in direct connection with the railroad systems of both European and Asiatic Russia, and avoiding the transit from Baku on the Caspian to Michailovsk.

In Afghanistan itself great progress has of late been made in the improvement of communications, especially military roads, though as yet railroads are tabooed. There is a considerable arsenal at Kabul, and a more or less ' Regular " army of about 60,000 men. The desirability of protecting the Amir from aggression, and by so doing, of preventing his territories being utilised as a base for the invasion of India, are obvious. This could only be accomplished by making Afghanistan the theatre of war in the first instance.

A great Maritime Power—which is assured of the command of the sea as against an "oversea" adversary—enjoys peculiar opportunities of strategic surprise in the matter of choosing its "theatre" or "theatres."

These may indeed be indicated by the political dissensions which led to rupture, or pointed by the disposition of the adversaries' forces—but the mere assemblage of troops and transports at a given port affords in itself no clue to their destination.

At the moment of writing, the Japanese are giving abundant proof of their thorough appreciation of "sea-power" and its value when supplemented by a Field Army capable of reaping the fruits of naval success.

Whatever may be the ultimate verdict in the Far-Eastern War now commencing, it is certain that the operations will be of intense interest, admirably illustrating every strategic axiom of the science of warfare, and abounding in lessons profitable to ourselves.

"SMALL WARS."

In the "small war" proper, *i.e.*, in campaigns undertaken by civilised nations, employing Regular troops, against savage or irregular

opponents, it is rarely that a choice of "theatre" is possible. Such wars are usually forced upon a civilised Power whose troops must, more often than not, operate in a terrain entirely of their adversary's choosing, and either destitute of the supplies and communications to which they are accustomed, or at best providing them to a quite inadequate extent.

But the choice of a line of operation is highly important, and the principles which govern the selection are important also.

Every characteristic of the "small war" is influenced by the fact that the opponent (the "irregular") has no "communications" (in the sense which we have hitherto considered), which can be operated against.

This being so, the guiding idea of the commander of the Regular troops is to bring the enemy to action by a vigorous offensive, to inflict upon him as much loss as possible, and to promptly follow up every success, with a view to repeating the dose at the earliest possible moment.

Thus "Strategy," in the sense of operations framed with the idea of forcing the adversary into a "strategically unfavourable position," becomes comparatively unimportant, since the

irregular regards elaborate schemes with indifference, and indeed the strategic advantage lies with himself throughout.

The "Regular" troops must follow the "Irregular" wherever the latter wander, for there may be no other tangible objective. (*Vide* "Objectives.")

Considerations of *supply and transport*, and often of *water*, affect and hamper their every movement, and often determine the line of operation.

Even should there be a tangible objective, such as the relief of a beleaguered garrison, the best line of operation will not necessarily be the shortest, but that which provides the greatest facilities for transport (*e.g.*, a road or river), and which, moreover, will permit of the troops, during their march, being fed to the last possible moment, direct from the "communications."

Under such circumstances, the possible "zone of operations" is restricted to a very small area on either side of the communications. Should it be necessary to extend this zone, to detach any body for operations at a distance, it will be necessary for that body to cut itself loose from the communications, and to operate as a flying column, burdened with all the supplies and their

transport which are required for the intended period of absence, with sick and wounded, and hampered at every turn by the necessity of guarding all this collection of non-combatants and material.

An excellent example is that of the Nile Expedition of 1884-1885. General Gordon was shut up in Khartoum, and it was only after unaccountable procrastination and delay that a relief expedition was sanctioned. Since time was all-important, it might be imagined that the shortest route to Khartoum, that from Suakin, viâ Berber, would have been chosen. But this route is almost entirely waterless, and to carry water for the large force necessary for Gordon's extrication would have been impracticable, in the absence of a railroad. The lightest form of temporary rail could scarcely be laid at a rate exceeding 1½ miles per day, so that it would have taken over four months to span the distance of 200 miles from Suakin to the Nile, assuming that all the requisite material had been available. Therefore the only possible line of operations was that by the Nile, which solved the difficulty of water, and permitted of supplies being carried by boat.

But, as we know, the entire scheme failed, and

failed solely and wholly owing to the difficulties of supply proving insuperable, even by the aid of the river.

Owing to the disastrous delay in starting, due to the attitude of the Home Government, the Nile had fallen to such an extent that the course from the second to the third cataract, which would have been navigable by steamers only a few weeks before, was with difficulty passed by small boats.

The desert force which left Korti for Metemma in the vain hope of making up the lost time, was crippled by lack of supplies, and its transport suffered severely at Abu Klea, with the result that Khartoum fell just as it reached Metemma.

Eventually also the operations of the River Column broke down for like reason. The entire affair was ruled by the supply question throughout.

THE INFLUENCE OF THE CONFIGURATION OF FRONTIERS.

Assuming the imminence of hostilities between conterminous States, it is clear that each must needs "mobilise," "concentrate," and equip its

fighting forces, and carry out their "strategic deployment," before it can set in action its plan of campaign.

It could rarely happen that a rupture of negotiations occurred before this preparative process had reached an advanced stage. Consequently, in the case of each intending belligerent the process must be perfected within the bounds of its own territory, or at least within a sphere of influence of its own, where it would be safe from any interference of a third party.

Usually, moreover, the "trace" of the strategic front of each would lie roughly parallel to the political boundary line, since neither would care to abandon territory without a blow, save where some striking military advantage would necessarily follow.

The subject is, therefore, usually treated of under the heading of the "Influence of *Frontiers*," not of "Fronts"—or "Zones of Deployment," while a "stock" examination question is "Discuss the advantages and disadvantages of a salient frontier."

The "geometrical" relation—the relative positions and shapes—of the two opposing "fronts" is of considerable importance, and may be such as to confer upon one army a distinct advantage

or disadvantage in the initial operations, having regard to the material objective aimed for at the outset.

(The term "material objective" is here used to differentiate a capital, an important fortress, town, railway junction, source of supply, etc., from the opposing *forces*, which are, of course, the *primary* objective, but which would assuredly be disposed with the object of safeguarding the important "strategic point" forming the "material objective").

The strategists of each would naturally endeavour, when framing a plan of campaign, to utilise to the full any geographical advantage which might offer, or to neutralise a clearly-indicated disadvantage, and would, moreover, closely study all that was known of each other's schemes, which must necessarily enter into the calculations.

The "advantage" sought for is, of course, the possibility of directing on to a desired objective a line of operation which shall safeguard our own communications and line of retreat.

If, in addition, it is possible to simultaneously threaten the enemy's communications and retreat, the advantage is multiplied exceedingly,

for he may be compelled to "form front to a flank" in order to oppose our enterprises.

The configuration of the political boundary line, and its physical characteristics, may give or deny this advantage, but it will at once be realised that to extract an advantage we must possess the initiative; we must be able to complete our preparations and *act* before our opponent can do so. If we fail to snatch the initiative we must perforce abandon our plans, in order to oppose his, and we cannot hope to derive any benefits from relative position.

This is but one more example of the paramount necessity of adequate preparation for war during peace.

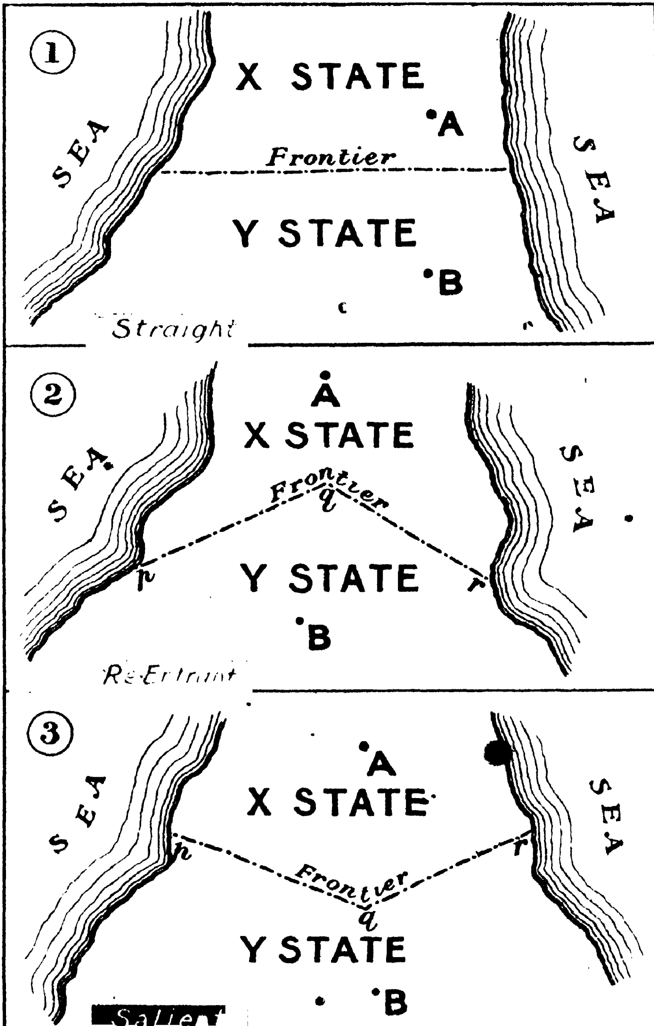
Let us place ourselves in the Headquarter Office of a State which is preparing a plan of campaign for possible use against a neighbour. Looking to the configuration of our boundary line, this may be—

(1) A straight line.

(2) Bent so as to form an angle towards us (re-entrant).

(3) Bent so as to drive a wedge of our territory into the enemy's frontage (salient).

Thus:—Supposing that we are looking at it from the point of view of "X" State.


1
X STATE
A
SEA
Frontier
SEA
Y STATE
B
Straight
2
A
X STATE
SEA
Frontier
q
SEA
p
Y STATE
r
B
Re-Entrant
3
A
X STATE
SEA
SEA
p
r
Frontier
q
Y STATE
B
Salient

These terms only derive significance when considered with relation to a material objective. So we will suppose that A is the capital city of X State, and B that of Y State, also that each capital is of such importance that its occupation would put an end to hostilities, and that the capital will therefore be the material objective of each army.

In case (1) it is clear that neither State derives advantage from the straight frontier, but that capital "A" (our capital) is much closer to that frontier than capital "B," our objective. We are, therefore, at a disadvantage, since the loss of one battle may involve the loss of our capital, whereas we may have to win more than one battle in reaching "B."

In case (2) both "A" and "B" lie at roughly equal distances from the boundary line, which is re-entrant as regards ourselves (X), but salient as regards our opponent (Y).

We clearly enjoy an advantage, since, if Y snatches the initiative, and marches on "A," our capital, he may cross the frontier somewhere on the facet "pq," or on the facet "qr," or debouch from the angle at "q" itself.

In either of the two former cases, we can threaten his communications and line of retreat

from the other facet, whilst, in the event of his crossing *at* " q," we can threaten him from either " pq " or " qr," or both.

Therefore, we enjoy a strategic advantage, even on the assumption of a " Y " initiative, and, the more acute the angle " pqr," the more pronounced our advantage, and the greater the danger to " Y " of thrusting troops into the salient.

But suppose that we (" X ") possess the initiative. We have now to decide whether to advance from both facets, from one, or from the angle.

If we advance from both facets we shall act on exterior lines as against our opponent, and must be assured of the great numerical superiority necessary for strategical envelopment.

If we are not assured of this superiority, we must choose the facet which presents most advantages from other points of view (*e.g.*, railroad communications, etc.), and operate from that alone, or, in the event of our forces being so large as to render their concentration inadvisable (*e.g.*, owing to difficulties of supply), we must cross by both facets, but taking care that we do not offer opportunities to our opponent of

successful action upon interior lines against our divided forces.

It may be quite possible for us to secure many of the advantages of strategical envelopment without exposing ourselves to risk of defeat in detail.

It is scarcely necessary to remark that if the frontier be indicated by a material obstacle, such as a river or mountain range, the possession of the points of passage is necessary to enable us to assume the offensive.

Clearly, then, the great advantage of the re-entrant frontier is that it affords us opportunities of operating against our opponent's communications, without laying open our own, and that we still enjoy *some* advantage in this respect, even in the event of being unable to snatch the initiative, if only for this reason, that our opponent cannot *assume* this inability, but must frame his plans, and conduct his first dispositions, on the assumption that our initiative is *possible.*

In case (3) only the simplest form of salient is shown.

If we (X) *are in a position to assume the offensive,* then Y must divide its forces on each facet, since it cannot be known from which we

may advance. We may, therefore, be able to pierce Y's front and act subsequently upon interior lines. To do so, we must hold all points of passage, and be capable of assuming a brusque offensive, otherwise Y may enjoy the advantages of the re-entrant.

But wherever we cross the frontier we leave on either flank a considerable area of hostile territory, untraversed and untouched.

These areas may later prove a fruitful source of trouble, since enterprises may spring thence upon our communications.

Should we decide to cross at the angle, or near it, we shorten the length of our march through hostile territory, but at the cost of leaving untouched areas on either side.

So far, then, on the assumption of our initiative, we have possible advantages, as follows:—

(1) Of surprise.

(2) Of acting upon something like interior lines.

(3) Of shortening our march through hostile territory.

But we labour under the serious disadvantage of leaving untouched areas behind us, whence may issue converging attacks and raids upon our communications.

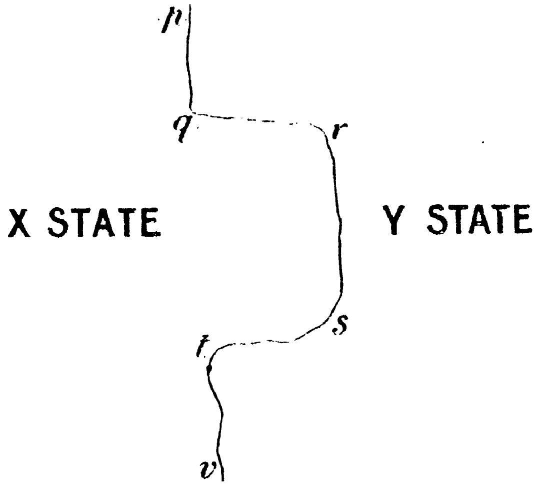
The advantages, then, depend upon our vigour and resolution rather than upon the form of frontier, while the disadvantage is inherent in that form.

But suppose Y to snatch the initiative, he will enjoy the advantages of the re-entrant form, already referred to, while we labour under the corresponding disadvantages, disadvantages which, as must be borne in mind, are inversely proportionate to the "roominess" of the salient.

To be "trapped" in a confined salient is one of the most fatal things which can happen to an army at the outset of a campaign, as the unfortunate example of Northern Natal has so recently reminded us, though, indeed, our troubles in Natal were largely due to causes other than lack of space to manœuvre.

Bearing in mind the terrible consequences of strategical envelopment, we may well say "beware of salients."

A particular case of a salient frontier, where the salient is very large and blunted, deserves notice. It may be expressed in diagram form, thus:—



On the assumption of an X initiative, if only the distance " rs " be sufficiently great, and if X enjoys great numerical superiority, the salient " qrst " may become, so far as he is concerned, a *double* re-entrant, with angles " pqr " and " stv."

Clearly any advance by Y from either " pq " or " tv " would be very dangerous, owing to the probability of operations against its communications, crossing " qr " or " ts," whereas X may act as on interior lines, execute feints, and effect a surprise, provided that the salient is spacious enough to permit of manœuvre.

In 1800 Switzerland was just such a salient, "qr" turning the flank of Kray in Southern Germany, and "ts" (crossed by the Great St. Bernard and the St. Gothard) turning the Austrian right flank in Piedmont.

Napoleon utilised the situation as a double re-entrant, the campaign of Moreau and his own operations being quite separate and distinct.

With further reference to the re-entrant form of frontier, it will readily be noted that much depends upon whether the material objective aimed at lies within or without the angle.

For, should we assume the offensive along a re-entrant frontier, and our opponent be based upon a point or locality lying within the angle, it is clear that the geometrical conditions afford us no facilities for cutting our opponent's communications with that base. We can only force him back along his natural line of retreat.

We possess, in short, no such strategic advantage as that which we should enjoy should his base lie beyond the confines of the salient. In the latter case we may be enabled to sever our opponent's communications by a direct advance from one facet or the other.

Thus, in 1800, in Moreau's Campaign in Southern Germany, the French front followed

the re-entrant of the Rhine from Lake Constance to Strasbourg, while Kray's "base" lay considerably outside the salient. Moreau was able, by a direct advance from Schaffhausen, on the southern facet, to completely overthrow Kray's project of an invasion of France, viâ the Black Forest, and forced the latter to retreat on Ulm.

Actual frontiers are, of course, complex compared with the simple theoretical examples quoted for illustrative purposes, and may present any combination of the three principal "forms."

Other campaigns illustrating the effect of the configuration of frontiers are:—

1. That of 1805, where the re-entrant of the Main and Rhine enabled Napoleon to strike the long-drawn Austrian communications and shut Mack up in Ulm.

2. That of 1806, where the adjacent re-entrant of the same rivers enabled him to turn the Prussian left (adventured dangerously far into the salient) by an advance from Baireuth, Bamberg, and Schweinfurth.

THE INFLUENCE OF MOUNTAINS UPON OPERATIONS.

In considering this subject from a strategical standpoint, it is well to differentiate the case of a purely mountainous region, from that of an occasional mountain chain, obtruding itself as a geological accident in a terrain which cannot, as a whole, be termed "mountainous."

The one will entirely modify the entire character of military operations, will demand special methods, special personnel and equipment; the other usually will not, for the "occasional" mountain chain will ordinarily cease to exercise a direct effect on a force which has removed from its vicinity.

Considering mountainous regions first, we find that:—

1. They are usually sterile, and therefore lack facilities of supply.

2. Being sparsely populated, they lack housing for troops.

3. Their inhabitants are frequently warlike, a fact which may be advantageous, or otherwise, according as to whether they are well-disposed or the reverse.

4. Communications of all sorts are few and difficult.

5. Extremes of climate are frequently encountered, and all natural phenomena, such as rainfall, drought, thunderstorms, etc., are apt to be much aggravated.

In consequence of these characteristics, we find that:—

1. Movements of troops are slow and laborious.

2. Obstacles, which under different conditions, might be unimportant, may block a road completely.

3. Concerted action is therefore rendered difficult.

4. The limited "horizon," the impossibility of using mounted men to observe an enemy, the scarcity of inhabitants, and the numerous physical embarassments, conspire to render the gaining of "intelligence" a most serious problem.

5. Movement off existing roads may only be possible for small bodies, and may be necessarily confined to infantry and mountain artillery.

6. Pack-animals are often necessary, rendering transport unwieldy, and greatly increasing anxiety on its account.

7. Lack of space forbids movement on a broad front, so hampering manœuvre, and often forbidding the employment of all the available forces.

8. The crest-lines are usually so inhospitable as to forbid their continuous occupation by considerable bodies. Since they must, in many cases, be occupied by small bodies, these are very likely to be commanded from high ground close at hand, or from that which they have just left, when they retire, as they must do eventually.

The above consequences are experienced by assailant and defender alike.

They suggest that, in "hill" warfare:—

1. As few troops as possible should be employed, that these should be specially equipped, provided with special transport, and should have received special training in the peculiarities of hill operations.

2. The defence will find the aid of well-chosen fortifications of great assistance, since these may be placed where they cannot be avoided.

Example.—In Switzerland, the St. Maurice, St. Gothard, and other important works.

They also suggest that, save in the case of operations against purely "hill-dwellers," the

decision of a campaign will seldom or never be arrived at in the hills. History, indeed, shows that almost every decisive battle has been fought in the plains, and that mountain operations have been, on the whole, of secondary importance.

Such operations are frequently protracted, and an energetic defence, combining locally passive frontal resistance with active enterprises on an assailant's flanks and communications, will compensate for disparity of forces and lack of general resources, to a far greater extent than could ever be hoped for " in the plains."

The assailant, possessing the initiative, and knowing that the defender must labour under equal disadvantages with regard to intelligence, enjoys many opportunities of surprise. Moreover, the piercing, at only one point, of a mountain line of defence, often compels the immediate evacuation of the whole. But ultimate success in mountain warfare is always dearly bought by an invader, given a determined resistance.

SPECIAL CONDITIONS.

1. Where a mountainous region abuts upon an enemy's line of communication, this region may be used by a defender as a base, whence issue raids upon these communications. This will usually compel the assailant to throw considerable forces into the hills to cope with the raiders, and thus, if it does not bring his operations elsewhere to a standstill, will at least seriously reduce the strength of his main forces.

Example.—The Tyrol, in 1809.

2. Where such a region separates two theatres of operations in a "great war," the party who controls that region may utilise it as a kind of "covered way," by which troops may be moved from one theatre to the other. Thus the centre of gravity of the situation may be suddenly shifted, and surprises effected.

The opponent will be debarred from doing likewise, and may be compelled to undertake operations in the hills, with much the same consequences to himself as in (1) above.

For the study of hill warfare against uncivilised enemies, the reader is referred to "Small Wars—their Principles and Practice," by Lieutenant-Colonel C. E. Callwell, R.A.

Passing to the consideration of the mountain

chain, as a geological accident in an otherwise normal terrain, we find that the effect such an obstacle will exert upon operations depends largely upon its position with regard to the opposing forces.

As a frontier, no mountain range has ever sufficed to prevent the irruption of a determined invader, provided that he also possesses the initiative.

Such a frontier will, indeed, favour an invader's strategy, for it will screen his movements, while the difficulties of knowing what is happening on the further side will almost certainly compel the defender to scatter his forces in order to watch all possible lines of advance.

In this connection it may be observed that such a mountain chain is nearly always crossed by several well-defined, well-known routes, but that there will also exist many less-defined, less-known crossings, perfectly feasible and available for military operations.

The defender will be favoured to this extent at least, that the number of these possible approaches must be limited, and he may be able to offer sufficient resistance in them to gain valuable time for his dispositions.

Thus it will often happen, in cases where the assailant's line of advance necessarily passes through such an avenue into comparatively open country beyond, that the better course for the defender will be to merely watch the exits, pushing small mobile detachments into the hills to offer local resistance, and, above all, to ascertain and report the main line of advance, while time is gained for a final concentration based upon the intelligence thus received.

It may then be possible to engage and overwhelm the emerging columns in detail, before they can effect a junction.

RIVERS IN WAR.

We have already seen, under the head of "Inland waterways," that under certain conditions it may be possible to utilise a river as a portion of the lines of communication.

But the rivers which traverse a theatre of operations may, indeed must, be considered also as *obstacles* to the free movement of the forces engaged, and it is in the capacity of an obstacle that a river ordinarily forces itself upon the attention of a commander. As such, a river-line differs from a mountain chain, in that it will most

probably offer more *existing* points of passage, in a given length, than will the latter. Moreover, if adequate bridging material be available, the number of *possible* crossings may be increased by the throwing of temporary (military) bridges. This multiplication of possible approaches facilitates the efforts of an assailant, correspondingly increases the difficulties of a defender, and so renders illusory much of the apparent value of a river-line as a line of defence.

At first sight it might appear that a weak defending force could choose no better position for defensive action than one along the front of which ran an unfordable river, the existing bridges of which had been destroyed. But the virtues of such a position will mostly change to vices, upon a closer examination of the attendant circumstances.

It is true that the defence will not "crumble away" quite so rapidly in consequence of a successful passage by the assailant, as usually happens in the defence of a mountain chain, but, on the other hand, military history teaches us that a superior force, well handled, has never failed to force a passage over even a considerable river, nor can it be said that any reasons

exist for supposing this teaching inapplicable to present-day conditions. The operation has always been difficult, always attended by severe losses where the resistance has been determined, and no doubt it may be still more so in the future, owing to the enhanced value of the tactical defensive and improved methods of communication in the field, but every offensive operation of war has been affected in like manner, and we do not abandon the idea of the offensive because it is somewhat more "dangerous" than it used to be.

To put the matter in a nutshell, unless the assailing force is necessarily restricted to a comparatively short length of the river-line for its approaches, a defender inferior in numbers must needs watch all possible crossing-places within what he believes to be the radius of action of his opponent. He must, then, disseminate his forces to a greater or less extent.

If he disseminates them too much, the assailant may force a passage towards his centre. If he keeps his forces too concentrated, the assailant may turn one of his flanks, crossing beyond it, or if in vastly superior strength, may turn both flanks of a cramped defence.

The advantages of mobility is never better

illustrated than in the defence of a river-line. Essential as it is to the assailant, and especially to the troops he details for flank movement, it is even more essential to the defender, who must be able to concentrate on this or that threatened point at the shortest notice.

The actual methods of crossing a river are:—

1. By swimming.
2. By boats or rafts.
3. By fords.
4. By bridges, ordinary, or military.

To cross by swimming is somewhat dangerous, apart from the discomfort of wet coats and wet skins; troops who swim a river are necessarily exposed, cut off at least temporarily from their supplies and from the remainder of the force, but such action must often be attempted by small bodies for definite objects not involving long separation, *e.g.*, in executing raids, reconnaissances, or in order to establish a covering force on the further bank.

Crossing by boat or raft is, in the case of large bodies, a long and tedious operation, moreover the collection of large numbers of boats and the construction of rafts, at any point, cannot fail to attract attention, and "give away" the point selected by the assailant for the effort.

Fords present serious disadvantages as points of passage over a considerable stream. Even if suitably placed, their existence will be known to the opponent, they will be well watched, or perhaps mined, and, unless the bottom be exceptionally favourable, the passage of many troops and wheels is apt to deepen the ford and render it impassable. In mountainous or tropical countries, again, there is always a danger of sudden floods.

A ford, then, would probably only be used as such by the leading troops, and would be supplemented by a bridge as soon as possible, if important traffic is to be passed across at that point.

Bridges, ordinary or military, represent the only crossings available for considerable forces, and for supplies in bulk.

Ordinary bridges may not exist at the required spots, they may exist and be strongly held, or they may have been demolished by a retiring opponent.

Military bridges cannot, for technical reasons, be thrown at every point, and take a considerable time to construct, whatever skill may be brought to bear in their construction.

Even if the actual passage be not disputed, a

force which has just crossed a considerable river in an advance, and which is about to attack, or be attacked by, the defenders, must necessarily be for some time in a position of strategic disadvantage, inasmuch as, in the event of a reverse, it may be compelled to re-pass the river in the face of a successful opponent. Defeat will mean more than mere tactical discomfiture.

Whatever be the actual mode of crossing, the act involves all the disadvantages of the passage of a defile, and a force crossing a river, either in advance or retreat, must be for the time in a more or less precarious situation, the measure of its peril being the proximity and enterprise of the enemy.

It may, therefore, be assumed that every effort must be made to curtail this critical period by the employment of *several* crossing-places. Indeed, in all large operations, separate facilities would be made for the different arms, and for transport, as well as separate points of passage for large units.

THE FORCING OF A DEFENDED RIVER LINE.

Military history teaches us that this has usually been effected by stratagem, and so, no doubt, it must be in the future.

Reconnaissance, as thorough as possible, having located the defensive dispositions, points would be selected for the main passages which appear to best fulfil the following conditions:—

1. They should displace the line of operations as little as possible.

2. They should offer the best chances of seizing good defensive positions on the further bank.

3. They should facilitate the operations to be commenced after crossing, lend themselves to deployment on the further bank, etc.

4. They should lend themselves to a re-crossing in retreat, should this become necessary, *e.g.*, possess commanding artillery positions upon the near bank, etc.

5. They should present the least possible technical difficulties, if it be a case of throwing military bridges.

It does not follow that the first troops to cross must do so at one of the points thus chosen.

On the contrary, once the enemy's troops have been driven over the river, feints, swoops, false alarms, and so forth, would be made at a number of points above, below, and between the "main" passages, and everything done to mislead the enemy as to the chosen line.

One or more of these feint attacks would eventually push boldly across, establish itself in good entrenchments, and spread right and left, so as to open up other passages.

Several such subsidiary passages having been opened, the main points should become practicable, and the commander should know whether he must turn a flank, or force a centre.

If the former, he will detail strong bodies of his most mobile troops to cross at one or more of the subsidiary points and operate vigorously on the flank of the defence, while at the same time, both feints and real attacks are launched along the entire line. Unless in enormously superior force, it will be advisable not to attempt to turn *both* flanks.

What the assailant has to fear is *counter-attack*. Thanks, however, to the increased efficacy of the tactical defensive, he can assure himself on that score by comparatively small, well-entrenched bodies, who should suffice to

keep open the passages, while the bulk of the available forces are devoted to the frontal and flank attacks. He should endeavour to "contain" the defender all along the line, and his feint attacks should be strong enough to make serious efforts, if necessary, for, if they are transparent feints, the enemy will merely contain *them*, and hurry reinforcements to the genuinely threatened points.

If, on the other hand, it be a case of forcing a centre, the mass of the artillery would be collected to support the attack, which would be carried out under cover of the concentrated fire of every available gun.

It is usually stated that the two especially significant features of a river, considered as an obstacle, are:—

1. The fact that one bank is often higher than the other.

2. That the course of a river is often tortuous, and it is "laid down" that every effort should be made to turn these physical peculiarities to account.

Thus, it is pointed out that if the assailant's bank commands the other throughout the length which enters into calculations, the assailant, lining the bank on his side, can command the

other by his fire, while at the same time he is well placed to observe the enemy's dispositions.

Also, that if the river winds in a loop indenting his front the assailant can, by lining the sides of the loop, render the area enclosed by it untenable by the defender, and secure in this manner ground on which his troops may deploy after crossing somewhere within the loop.

These, and similar "rules of thumb," are no doubt true, so far as they go, and cannot be entirely neglected. At the same time it is well to bear in mind the changes which have been effected by smokeless powder, Q.F. guns, the presence of heavy artillery with field armies, improved methods of gleaning and transmitting intelligence, all of which tend to diminish the value of rules-of-thumb in general, and which have made their reality felt since the majority of text-books were written.

Again, it used to be considered that, once the assailant had made good a footing on the further bank, his ultimate success depended in great measure upon his ability to augment his force, thus passed across, faster than the defender could bring troops to that point from other parts of the river, and from the reserves.

But, as General von der Goltz so ably puts it,

THE great lesson of our experiences in South Africa is, *that the mere mechanical massing of troops (at a given point), has no effect in the battle of to-day.*

This lesson may be read in another way, thus:—

If it is found that an attack in a certain direction fails to make headway, fails, as the advertisements of patent medicines say, "to produce the desired effect," it will not be made successful by increasing the number of troops taking part in it.

This important principle holds good in all cases, whether we are dealing with large forces, or the employment of individual units. It tells us that if a division finds itself checked in an advance, it will not avail to "reinforce" it by an extra brigade, or even by another division, taking the same *direction.* But the co-operation of even a single battalion, acting from a different direction, so as to cause the whole attack to be enveloping or convergent, may and often will be decisive.

If a brigade of field artillery has proved its inability to oust the defenders of a given line of entrenchment, nothing will be accomplished by bringing two more brigades into action alongside

the first. But the fire of two heavy, guns, directed on to the same target from positions many thousand yards on either flank, may accomplish what the direct fire of the other 54 could not. In other words, there is a stage at which it is useless to increase the numbers at a point, in the hope of attaining a proportionately increased "fire-effect."

Applying this to the case of a river-passage, it may be said that a lodgment on the further bank will be made good, and the way for further advance paved, rather by multiplying the crossings, and utilising the forces which cross by them in convergent attacks, than by hurrying large bodies over one and the same passage.

It is now recognised that gaps, even considerable, between such attacks, are positively advantageous, since they increase the angle of convergence.

Moreover, the advantage of surveying the further bank from a coign of vantage on the assailant's side of a river is less important to-day than formerly. So great is the dispersion upon a modern battlefield that it must be impossible for the commander of a large force to overlook more than a small fraction of the operations. This being so, it follows that for one change of

direction he may order, for one movement he may initiate, as a result of his own personal observation of the enemy's dispositions, he must order many changes, initiate many movements, in consequence of reports received from his Intelligence Department, from skilled Staff officers at a distance, and from his advanced troops.

It is only to the eyes of these agents and subordinates that hostile dispositions will be apparent, for a skilful enemy, on the defensive, will be all but invisible from a distance.

FORTIFICATION.

"Fortifications" may be divided into three classes, viz.:—

(1) Permanent.

(2) Semi-permanent, or "provisional."

(3) Field, or "hasty."

The first class comprises those elaborate works which are constructed with a view to the defence of vitally important strategic points, capital cities, harbours, dockyards, arsenals, etc., etc., and which are usually constructed during peace-time with ample leisure for the consideration of detail.

Example.—Portsmouth, Cherbourg, Antwerp, Cracow, Belgrade, etc., etc.

The second class comprises works upon a large scale, which are undertaken in view of imminent hostilities, or even after the outbreak of war, to supplement existing permanent fortifications or to secure a point which has developed importance in consequence of the conditions of the coming campaign.

Example.—Lines of Torres Vedras.

In both the above classes the works would usually be constructed by civilian labour, of course, under the supervision of expert military engineers.

In former days there was apparently no limit to the insensate outpouring of British money upon permanent fortification. Stone, iron, concrete, and brick attracted attention which should have been diverted to the building up of a military system.

The majority of the "white elephants" thrown up in the mid-Victorian era in deference to the opinions of misguided "experts," and in deference to the character of a people who preferred to *pay* rather than *act*, have long become obsolete, and a more sane estimate of the value (with a better grasp of the principles) of fortifi-

cation in general is now held by strategist and general public alike. The millions sterling, however, are gone beyond recall.

A certain amount of more or less elaborate coast fortification is unavoidable in the case of a maritime nation. Warships must have shelters, whither they can proceed for coal and refit, where they can lie secure when prudence suggests a temporary abandonment of that offensive action which is the *raison d'être* of a fleet, and where merchant vessels may load and discharge without fear of gun, ram, or torpedo.

To secure these shelters, and to protect the vast depôts of naval stores which naturally are accumulated in their vicinity, is the object of coast fortification. Works upon too small a scale might invite a naval attack of the old style, hence expediency calls for elaborate defences. But the days of serious "bombardments" of important coast fortresses by hostile warships are past and gone.

Not only must they be technically ineffective in proportion to the expenditure of ammunition involved, but no warship would venture to expend her ammunition in shelling coast defences while there was the least chance of being compelled to fight in her own element.

The quantity of ammunition carried by even a large battleship is relatively very small, particularly for the large calibres.

Modern coast defences are, for technical reasons, placed upon "high sites," and the guns of a war vessel being often limited as to angle of possible elevation, a vessel, in order to reach a "high site" battery, would often be obliged to stand out to a very long range, with corresponding loss of accuracy in practice.

The submarine and the minefield combine to render the "rushing" of harbours and channels impracticable.

"Raids" are, however, both possible and probable, and much of the thought devoted to coast defence is brought to bear upon the best means of meeting sudden onslaughts by small craft who may risk destruction in an endeavour to reach and damage shipping lying in shelter.

Coast defences, moreover, may be effectually attacked from the land side, if only the conditions permit of the disembarkation of a sufficient force. It was thus that the Japanese seized Port Arthur and gave the quietus to the fleet of Admiral Ting, nor has the lesson escaped the attention of maritime Powers.

In such enterprises the co-operation of a fleet

may be invaluable, but in all probability the action of the warships would aim rather at creating a diversion than at effecting the reduction of the defences by shell-fire.

Land fortresses, however, come under a different category.

In dealing with land fortifications of a permanent nature, it is well to assume two axioms:—

(1) That no fortress, however well constructed and equipped, can escape capitulation—if once effectively invested—unless the besieging force can be scattered by a relieving field army.

(2) That no fortress is of military value unless it assists the free *movement* of its own field army, while hindering the free *movement* of the opponent.

It must be remembered that men, horses, and mobility decide campaigns—not bricks and mortar.

One obvious "disadvantage" of fortresses is that they have an insatiable appetite for garrisons, for officers and men, who must be maintained and fed behind works, when they might be more usefully employed with the field army.

Napoleon, in 1814, suffered severely from

fortresses. On the Rhine, the Elbe, the Vistula, and the Oder were French garrisons, decimated by epidemics of disease, or destined to investment and blockade.

Had Paris been fortified, Napoleon's Field Army might, at a critical juncture, have gained a freedom of manœuvre which would have gone far to avert his downfall.

Paris was not fortified.

In the time of Marlborough and Turenne, the epoch of sieges and winter-quarters, fortification were deemed all-important. Armies were sent forth for the sole purpose of reducing a fortress, and the military records of those times are largely composed of the desperate struggles which ensued in these undertakings.

The armies of to-day sally forth with a different object—that of seeking and overwhelming the opposing field forces—and sieges are merely incidents in the operations to that end.

A very large fortress often has proved a death-trap to a field force deficient in resolution, *morale*, or equipment.

Such a body is tempted by the insidious protection afforded by rampart and redoubt into shutting itself up within the fold, where it

promptly becomes non-effective, and where its surrender, unless "relieved," is merely a matter of time. Strasburg and Metz are examples of how a potential source of strength and activity may become a snare.

So also did Ladysmith prove a snare, although here neither resolution, *morale*, or equipment were wanting. Indeed, the occupation and investment of the little Natal village were due primarily to an embarrassing excess of the latter commodity.

The entrenched camp is merely a fortified sheep-fold, destined, doubtless, to serve as a pivot for a field force, but exerting upon that force a magnetic attraction which may, under certain conditions, prove fatal.

Not that either fortresses or entrenched camps can, or should, be dispensed with.

Far from it being so, either may be of the utmost strategic importance, if well-chosen, properly equipped, and correctly appreciated by the commander of the field army.

Certain localities and "positions" suggest themselves, even to a tyro, as eminently suitable for fortification, or for the adoption of a passive defensive, because they either—

(1) "Straddle" the only possible approach, or

(2) Forbid a force to pass without effecting a complete blockade, if not reduction.

Such sites may be chosen for either permanent or semi-permanent, or even field works.

Examples are:—

1. *Torres Vedras* (semi-permanent).

2. *St. Maurice.* Sealing the Rhine Valley, and rendering Switzerland secure from any advance viâ the Simplon or Great St. Bernard. (permanent.)

3. *The Peninsula of Constantinople* (Buyuk-Tchekmedje) (almost a "twin" affair to Torres Vedras), where the Turks hoped to establish a réduit against the Russian advance on Constantinople in 1877 (practically amounted to semi-permanent work).

4. *Plevna*, where, in the same campaign, Osman Pasha, with 40,000 Turks, by threatening the communications of the Russians, forbade them to pass the Balkans, and tied the hands of the Russian commanders during five months (field works).

5. *Ciudad Rodrigo, Badajoz, San Sebastian, and Pampeluna*, in the Peninsula, each of which sealed a vital route.

But, to ensure ultimate success, it must be possible to resume the offensive, and the instant

a fortress ceases to either hinder the advance of the enemy, *or* enhance the freedom of its own field army, it ceases to possess strategic value.

The importance of "position" quite eclipses considerations of so-called "strength," vast profiles and complicated networks of defences are really superfluous; in all probability the same object can be effected (if only the fortress be "planted" with an accurate strategic insight) by modest tasks of *remblai and deblai*, while invisibility is a far better protection from fire than great thickness of parapet or depth of ditch.

A fortress—great or small—may enhance the freedom of action of a field force, either by securing for that force free passage over an obstacle such as a bridge, ford, mountain pass, or defile, or by sheltering and storing accumulations of supplies and material destined for its use.

The garrison should be sufficient for the maintenance of the place itself, and the field army must look upon it merely as a stepping-stone, or as a base, not as a sheep-fold.

Again, fortresses may be designed to act as *points d'appui* for the flanks of a field army, but here again their dangerous magnetic attraction may make itself felt.

The fortification of a capital is almost always deemed necessary, though cases in which the advance of an invader has been rolled back from the gates of a capital, are rare indeed.

The investment of a capital pre-supposes the scattering and demoralisation of the field army; without that army no scheme of fortification can suffice to more than postpone the inevitable.

The third class ("field works" and hasty entrenchment) comprise all those minor engineering operations by which the troops of a field army seek to strengthen their position either in attack or defence, using, as a rule, only those appliances and tools which can be transported with the army, and with a strictly limited time available for work.

It may roughly be said that the great point of difference between "field fortification" and the more elaborate "permanent" or "semi-permanent" varieties is this:—

That the latter influence operations whether the armies which pivot upon them are close at hand, or at a distance, whereas field works and hasty entrenchments develop their powers only when manned by troops, ceasing to influence the operations when the troops quit their shelter.

In other words, the value of permanent and

semi-permanent work is strategic and constant, that of field fortification is rather tactical and ephemeral.

Occasions may occur on which a locality, originally strengthened only by field works, may acquire a strategic importance out of all proportion to the number and profile of those works. Such was Plevna in 1877, and such was Ladysmith in 1899, both places becoming, under stress of circumstances, improvised fortresses of the first importance.

To lapse for a moment into the domain of "Tactics," the importance of field fortification has increased *pari passu* with the perfection of armaments. It may be said to have been born in the American Civil War, where the insufficient military training of the troops engaged caused much reliance to be placed upon pick, spade, and axe. It has persisted ever since, until at the present moment it is recognised that the intelligent use of these tools can alone enable troops to live under the enormous volume of fire delivered by the enemy.

No arm of the service can dispense with field fortification, and remain effective, while entrenchment is no longer peculiar to the defensive.

At the same time the defence must usually enjoy the advantage of being able to construct its material defences upon a *pre-arranged plan*, and is, therefore, more likely to derive the full benefit of time and labour.

The attack must also entrench itself, in order to make good the ground it has won, and form "jumping-off places" for a further advance, but must necessarily, at first, work in the dark (often literally, as well as metaphorically).

Like tactics, the art of field fortification has undergone profound modification in recent years. Formerly, the great object was to combine a serious material obstacle to assault with the maximum of cover from view and fire. Hence we had high profiles, deep ditches and trenches, enclosed works, continuous parapets, and all the rest. Now-a-days we endeavour to secure immunity from fire rather by irregularity, combined with invisibility, and we have the lowest possible profiles, few, if any, closed works, short lengths, trench-work often made by *deblai* alone, and we pay great attention to minimising the effects of enfilade fire, which has become of such vital importance, thanks to the increased range and accuracy of weapons.

The "material obstacle to assault" has all but

disappeared, and we rely rather upon our fire to quench the ardour of the attack. Such obstacles as are used are planned and laid with the express object of checking advancing troops *under fire*, and they are placed so as not to interfere with essential counter-attack.

Modern guns are not constructed with a view to the breaking down of walls and parapets, but with the object of sweeping *areas* of ground with shrapnel bullets. Immunity from their fire can best be secured by deep and narrow trench-work, rendered as inconspicuous as possible, so that the gunlayers may have no definite target upon which to direct their sights.

There is full scope for artifice and originality in field fortification.

The Howitzer deserves notice. Firing a heavy shell with low velocity and high trajectory, the consequent steep angle of descent has sounded the knell of enclosed works.

No form of head cover which could be constructed in field works proper would be proof against the violent impact of high-explosive Howitzer shell. The interior of a closed work attacked by Howitzers would be untenable from the moment the "range" had been ascertained.

But Howitzer-fire can never attain the

accuracy of either gun or rifle-fire, and the radius of effect of even a high-explosive shell is very small. Many rounds would have to be fired at a trench 2ft. 6in. wide before a chance shot fell within that narrow limit, and the "theory of probabilities" is perhaps the most effective defence against the fire of the Howitzer—in other words, when expecting bombardment by Howitzers, we must make our trenches as little like "shell-traps" as possible.

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